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The Garden Journal

of The New York Botanical Garden

No. 1 Jan.-Feb., 1953

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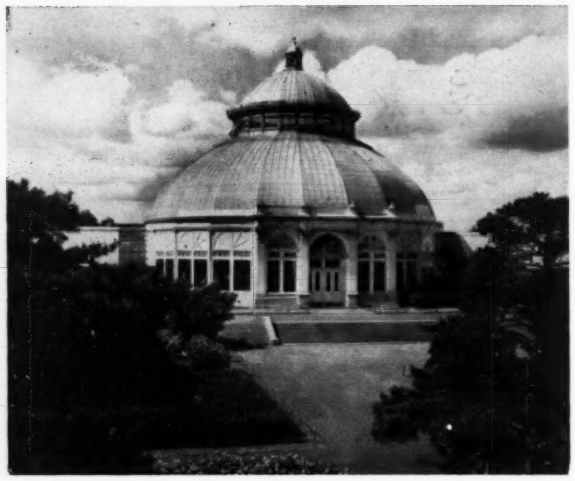

SATURDAY AFTERNOON LECTURE PROGRAM — First Lecture in Winter 1953 Series: "Portugal — Europe's Western Garden by the Sea," by Alice Chauncey on January 3.

EDUCATIONAL PROGRAM — Courses Re-open January 5: General Botany II, Advanced Course, H. W. Rickett; Soils and Fertilizers, Louis P. Politi.

DOROTHY EBEL HANSELL
Editor

THE GARDEN JOURNAL
of The New York Botanical Garden

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January-February, 1953

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CREDIT FOR ILLUSTRATIONS

Front cover, colored illustration of orchid display in the Conservatory of The New York Botanical Garden, by E. N. Mitchell; p. 3, T. H. Everett; p. 4, E. N. Mitchell; pp. 11-13, Morton Arboretum; pp. 15-17, drawings by Elizabeth S. Williams; p. 18, J. F. Joyner; p. 22, Farr Nursery Co.; p. 23, School Garden Association of New York; p. 24, Dr. Bassett Maguire; p. 30, Camera Associates, Inc.; p. 31, McFarland Publicity Service — courtesy Wayside Gardens; back cover, from the cactus collection of The New York Botanical Garden.

AMONG OUR CONTRIBUTORS

DR. PAUL B. SEARS became Professor of Conservation at Yale University in 1950, heading the Nation's first graduate program in research and instruction on the conservation of natural resources. Excerpts from the inspired address he delivered before the American Forestry Association is presented to our readers by courtesy of that association and "American Forests" . . . DR. BASSETT MAGUIRE, Curator of The New York Botanical Garden, is now engaged in another plant exploration of the Guayana Highland, accompanied by Dr. John Wurdack. . . . T. H. EVERETT, Horticulturist of The New York Botanical Garden, returned from his plant hunting expedition to the British Isles with many interesting plants which will gradually be introduced into American gardens. . . . ELIZABETH ANN PULLAR, a native New Englander, studied landscape architecture at the Massachusetts Agricultural College and holds a graduate degree in that subject. At present she is a garden consultant with resident offices in New York and Thomaston, Conn. Mrs. Pullar has traveled in South America and Europe studying gardens and she has done much research in the field of eighteenth century gardens and gardeners. For many years she has been writing articles of horticultural interest for newspapers and magazines. . . . HOWARD W. SWIFT was a student gardener at The New York Botanical Garden from 1934 until 1936, when he was chosen as exchange student-gardener to the Royal Botanic Garden at Kew. Returning the following year, he remained with The New York Botanical Garden in its horticultural department until 1942. Since then, interrupted by service with the U. S. Army, Mr. Swift has been with W. Atlee Burpee Co., Philadelphia, Pa., Podeska Balocchi, San Francisco, and Peter Henderson-Stumpp & Walter Co., in New York City. . . . DR. L. M. MASSEY has been studying diseases of ornamental plants for many years and has been especially concerned with roses. In 1947 he was awarded the gold medal of the American Rose Society for his work on blackspot. Since 1922 Dr. Massey has headed the department of plant pathology at Cornell University. . . . E. LOWELL KAMMERER, having been on the staff of the Morton Arboretum for almost twenty-four years, has practically watched it "grow up." In addition to assisting in the planning of many of the Arboretum features, he has edited the "Bulletin of Popular Information" since 1929, directed the library, and served as Curator of the Herbarium. . . . ELIZABETH S. WILLIAMS has led a colorful life. As Recreation Director of the American Red Cross Hospital Service, she spent two years in New Zealand with the Yale University Unit and later served in New Hebrides, New Caledonia, and Guadalcanal. After a return visit to the United States as speaker for the Red Cross War Fund drives, she returned to the South Pacific as a civilian volunteer and social worker. Mrs. Williams is well known for her lectures and writings on social and medical conditions in the Far East. . . . NATALIA OSSADCHA-JANATA was temporarily attached to the Herbarium of The New York Botanical Garden under a fellowship from the research program of the U.S.S.R. . . . EDWARD O. GANGSTAD, Agronomist, J. F. JOYNER, Assistant Agronomist of the U. S. Dept. of Agriculture, Bureau of Plant Industry, Soils and Agricultural Engineering, and C. C. SEALE, Associate Agronomist, University of Florida, Everglades Experiment Station, are working in co-operation with the agricultural engineers on the commercial production of ramie, kenaf, sansevieria, and miscellaneous long vegetable fibers at the Everglades Experiment Station, Belle Glade, Florida. . . . DR. A. B. STOUT is Curator Emeritus of The New York Botanical Garden. . . . ROMAINE F. BUTTON, teacher in the public school system of New York City, is assigned to the Nature Study office of the Board of Education, and is editor of the "School Garden Guide." . . . GERTRUDE B. FOSTER is editor of "The Herb Grower Magazine."

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The Intangible Values of Conservation

By **Paul B. Sears**

AMONG the many forms in which wealth exists, none is more real or more important than those which are intangible. And yet, since they are intangible, they are elusive and keep the tax experts awake at nights. Some, like the good-will of a doctor's practice, are considered to be negotiable, although more than one buyer has found that they evaporate with the genial personality which built them up.

A good way to get at the intangibles is to focus our attention on quality rather than quantity. There is plenty of beefsteak in the Argentine, plenty of jewels and domestic servants in India, but we do not use them as the basis of our choice in deciding whether we would prefer those countries to our own.

The present revolt of Asia and Africa against the West are, as Edgar Ansel Mowrer points out, neither due to hunger nor Communist plotting, but to the wish of men to be looked on as men, and not colonial vassals. We are inclined to forget that the idea behind the American Revolution has been and still is, the great explosive force in the modern world. Mowrer goes on to show that the Iranian oil troubles are not primarily economic but social, due to Jim Crow treatment of Iranian workers by the Europeans.

Dignity and self-respect are certainly intangibles, but so precious are they that when a man lets them go cheap, we all think he never had them to sell in the first place.

Or take intangibles of another sort. Why do men amass wealth and how, generally, do they use it when they have it? The miser is rare, the man who loves power over others, unfortunately, not so rare. Both are despised. But the ends to which men generally use their wealth, and certainly those by which they wish to be remembered, are largely intangible, if you look behind the material evidence. American philanthropy — galleries, libraries, aid to the blind, endowments of learning — all antedate the problem of income tax exemption and estate taxes.

The conservation movement in our country has involved both kinds of values from the beginning. The aesthetic appreciation of forests had as much to do with early attempts at conservation as did practical concern for the future lumber supply. I suspect the same is true with other resources. Men will fight harder and more doggedly for something they think they or their grandchildren might someday need. This is truer today than ever, for

voices — even those of eminent scientists — soothingly assure us that no matter how badly we use our resources some bright lad will show us a way around the difficulty.

Because we are a practical and business-like people, there is a tendency in some quarters to rely too strongly on narrowly practical arguments for conservation. Thus the Army Engineers and Reclamation Services are required, very properly, to prepare budgets of cost and expected benefits. There is growing dissatisfaction with both entries, partly because of the difficulties of prophecy. But one of the greatest causes of mistrust lies in the fact that the operations of both groups involve hazards which lie outside the strict field of engineering and bring about changes in the landscape which affect its quality.

Every forester is aware of similar tensions within his own field of interest. Most foresters I know have chosen to work with trees because they like trees. Their original motive is an aesthetic, artistic impulse rather than an economic one. So unless they are callous indeed, they are sensitive to the problem of trees for harvesting versus trees for enjoyment. They have done very well at resolving this conflict.

Without for a moment playing down the urgent need of conserving woods, waters, soils, and wildlife for use, it is my belief that we shall do irreparable damage to our country unless we conceive of use within a proper framework of intangible values. No man in his senses is content with a house that provides only an adequate and convenient shelter. He wants it to be in the kind of neighborhood he likes, adorned and beautified according to his standard of taste.

More and more he insists on the same values in the factories and business structures where he spends his working life. Most of our striving is for something beyond bare physical necessities. When a man is interested in nothing more, he is dead though he continues to breathe. The same is true of a civilization.

So I suggest it is high time for a new emphasis in conservation. It is not enough to plan the most efficient ways of conserving for future and continuous consumption. We must give thought to the kind of a national landscape within which we will conserve and consume. Do we want it to follow the pattern of those indoor, overbred leghorns and dairy cattle, streamlined for phenomenal production of eggs and milk until nothing is left at the end but an exhausted carcass? I doubt if that is even good economics.

Or do we want to meet our material needs within a continent, where generous provision has been made to insure that it is the kind of setting we like to live in? Do we want to depend for the intangible qualities of our living only on those reserves for which no competing "practical" use can be found? Or will we insist on the same philosophy in our national home-making that any intelligent man follows in establishing a place for his family to live?

The question is urgent. There is unremitting pressure from those who would turn a nimble dollar by picking the landscape to its bare bones. Only by hard fighting has it been possible to keep back invasion of national monuments and parks set aside in perpetuity for the use and enjoyment of the people.

It is time to recognize that conservation goes far deeper than the matter of bread and butter. It involves the whole conception of freedom, dignity, and the American spirit.

Botany of
The Phelps' Venezuelan Guayana Expedition

By **Bassett Maguire and Kathleen D. Phelps**

The following is taken from the report published in "Boletin de la Sociedad Venezolana de Ciencis Naturales," Vol. XIV, No. 78.

—Editor.

For many years Doctors William H. Phelps and William H. Phelps, Jr., have devoted much time to the field and museum study of the bird life of Venezuela. As a result, their collections and writings have made the avifauna the most thoroughly collected and best known element of the entire natural history of Venezuela and, indeed, of northern South America.

Their contributions in natural history, aside from the field of chief interest, have been comprehensive. The notable Phelps' expedition to Auyantepui in 1937-38 obtained general collections of the animal and plant life of the plateau mountain. The collection of plants produced the most significant additions to the flora of the Gran Sabana since the earlier historical collections from Mt. Roraima, and together with the botanical results of the Tyler Cerro Duida Expedition of 1928-29, still today comprises the most important contribution to the knowledge of that remarkable cumbre vegetation of the sandstone table mountains of the Guayana Highland.

In continuing exploration into Guayana and Amazonas, plant collection has become a secondary but most important and contributive part of the activities of the Phelps' expeditions. The botanical work has been done by Kathleen D. Phelps, largely assisted by Charles B. Hitchcock, in Cerros Sipapo (Paraque) and Yavi, and Serrania Paru in Territorio Amazonas, and Uaipan-tepui in Estado Bolivar. Most recently on the Phelps' expedition to Cerros Guanay and Camani in Territorio Amazonas, the botanical collections were made by Kathleen D. Phelps, Bassett Maguire, C. B. Hitchcock, and Gerald Budowski.

It is now proposed to continue with reports on the botany of the Phelps' expeditions under the above title. This represents the first part of our findings from Cerros Guanay and Camani. Additional papers will follow from time to time. Cited specimens are deposited in the National Herbarium of Venezuela and at The New York Botanical Garden.

The Cerros Guanay and Camani lie in the upper region of the Manapiare-Ventuari drainage in northeastern Territorio Amazonas-Guanay at the headwaters of the tributary Rio Guaviarito and its Cano Negro. Camani is some thirty kilometers to the south of Guanay, and is at the head of Cano Raya, perhaps fifteen kilometers west of the Rio Guaviarito.

Much of the valleys of the Guavia-

(Continued on page 24)

Horticultural Commentary

HOUSE PLANT TRENDS

By T. H. Everett

INTEREST in house plants it at an all-time high. This is true not only of the United States but of many European countries, too. It is manifested by the number of books and magazine articles devoted to room plants and their culture, and by the increased variety of such plants that are exhibited at flower shows, that are advertised, and that are available from florists and other trade sources.

Of special significance is the intense interest taken by commercial growers in obtaining and promoting new kinds. The great greenhouse range of Julius Roehrs Company at East Rutherford, New Jersey, shelters a splendid collection of rare, and what lately were rare, species and varieties. Roehrs' Alfred Graf not long ago traveled around the world in search of promising pot plants. Mulford B. Foster of Orlando, Florida, has enriched the house plant flora by the addition of many plants, especially bromeliads, that he has brought back from his South American expeditions. T. MacDougall of the Ivy Floral & Landscape Company in the Bronx has for many years made annual expeditions to the remoter parts of Mexico, with the result that numerous new and unusual plants have found their way into the homes of the American amateur, often via the plant counters of the dime stores. David Barry, Jr., grower of rare plants in Los Angeles, California, in 1952 returned from a plant hunting expedition to the Hawaiian Islands. His finds undoubtedly include some that have possibilities for house decoration. Not since the last century, when European collectors searched the world for plants to grow in the conservatories and greenhouses of the wealthy, have tropical plants been so sought after for cultivation in temperate climes.

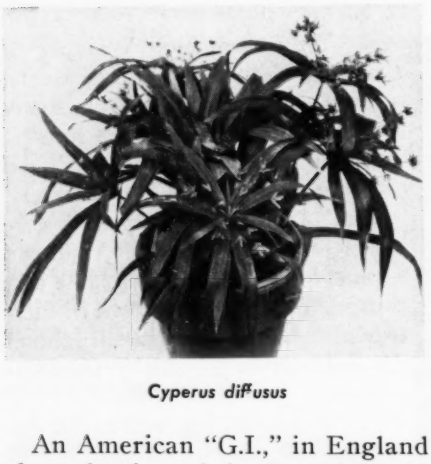
Cyperus Haspan viviparus

Many commercial growers, other than those who have journeyed abroad in search of plants, are actively interested in obtaining, growing, and selling worthwhile new plants. Werner Lieb of Lieb's Greenhouses in New Rochelle, New York, pioneered some years ago with the pick-a-back plant and the panamiga *(Pilea involucrata)*. In Hightstown, New Jersey, Milton Arndt has assembled an outstanding collection of geraniums and engages actively in the breeding and distribution of new kinds. The operators of Logee's North Street Greenhouses at Danielson, Connecticut, have long specialized in rare and unusual house plants and are actively adding to their collections. In addition there are numerous growers catering to the needs of those amateurs who make hobbies of cultivating African violets, begonias, cactuses, and other popular kinds. Letters and inquiries that have come to my desk from Bob Weidner of Buena Park Greenhouse, Buena Park, California, and from many other sources reflect this interest of the commercial men in good house plants, and the commercial man's interest is prompted largely by the demand of the American plant buying public for plants that are different, to be grown in their homes, offices, stores, and schoolrooms. It is a healthy phenomenon.

The astonishing, and to me, exciting aspect of this upsurge of interest in growing plants in the home and in using them for interior decoration is that people are interested in *variety;* they are no longer content with the old standbys, no matter how satisfactory for room culture they may be. This desire for something different has been responsible for a complete change in the list of foliage plants offered. The days when palms, pandanuses, rubber plants, and a few other items were all that were available have gone. The aroids have come into their own. Monsteras, dieffenbachias, philodendrons, pothos, scindapsus, schizmatoglottis, aglaeonemas, and others have proved highly adaptable to house culture and decorators rejoice in the bold characters of their varied growth habits and foliage. One commercial grower on Long Island operates a vast range of greenhouses exclusively for the production of about a dozen kinds of philodendron. In addition to aroids, dracaenas, marantas, peperomias, and a great variety of other foliage plants are popular.

The case of *Fatshedera Lizei* is interesting. Some few years ago I began "selling" the idea that this bi-generic hybrid was a good house plant. At that time, to the best of my knowledge, it was not grown for that purpose anywhere except in my home. Today it is one of the most popular of indoor foli-

age plants and is raised in vast quantities by commercial interests. In 1952 I saw for the first time in Europe a variegated fatshedera. Alert commercial men had already obtained this, and it will soon be available on the American market.



Cyperus diffusus

An American "G.I.," in England about the time of the Second World War's end, "snitched" a cutting or two of *Philodendron panduraeforme* from the aroid house at the Royal Botanic Gardens, Kew, and brought his spoils to this country. These small pieces formed the parent stock from which were raised all the many plants of the "horse's head philodendron," that now decorate our public rooms and private homes.

Werner Lieb was enterprising enough to see the possibilities as a house plant of a species native to our own Pacific Northwest. He raised many thousands of *Tolmiea Menziesii* in pots. One of his daughters created the fanciful name pick-a-back plant for them, and they were sold with such satisfactory results that he proudly reported to me later that it was the pick-a-back plant that put that same daughter through college.

Some alert grower not so long ago called the attention of the trade to the good qualities of seedling *Schefflera actinophylla* as potted or tubbed specimens and before long these were competing with monsteras, philodendrons, dracaenas, the fiddle-leaved fig, and the rest for the attention of the plant buying public. The schefflera is a native of northern Australia, but I understand that a few seed-bearing specimens exist in our South and that from these are raised the potted plants the florist offers.

In Europe in 1952 I found evidence of a tremendous interest in foliage plants. Apparently this is particularly true of Denmark, the other Scandinavian countries, and Belgium. In Britain it is only just beginning. A young Dane, C. Boutard, is pioneering there, but it seems to me that the British with their notoriously cold homes will have to rely less upon tropical plants than do inhabitants of lands where central heating is the rule and more upon the plant natives of temperate climates. It will be interesting to see which plants succeed there.

Among the plants that I brought back from Europe recently are several that I believe have good possibilities as house plants. High among them I rank *Pilea Cadierei* for which I suggest the common designation of watermelon

Pilea Cadierei

pilea, a pygmy papyrus named (perhaps wrongly) *Cyperus Haspan viviparus,* a dwarf umbrella-palm that is botanically *Cyperus diffusus*. The first named was collected in Annam (near Indo-China) by the missionary Cadier and was first described in 1938. Living specimens were sent to Paris and from there to Denmark and on to England and other countries. This species grows a foot or so tall and is very different from any other pilea with which I am acquainted. Its leaves are conspicuously marked with blotches of silver caused by layers of air between the epidermis and the underlying tissues. The silvery patches are essentially blisters. As evidence of this hold a leaf to the light. The silvery marks are not visible when the leaf is viewed by transmitted light.

Cyperus Haspan viviparus is charming and graceful. It is well suited for growing in a sunny window. It needs rich wet soil and thrives when the pot in which it grows is submerged or is kept standing in water. Its slender, bright green stems are two feet or less tall, and each is surmounted by a three- or four-inch half spherical mop of slender bright green stands. Each mop, if bent down and kept in contact with a water surface, quickly gives rise to a new plant.

The dwarf *Cyperus diffusus* is sturdier and deeper colored than the common *Cyperus alternifolius,* and for these reasons is a better house plant. It needs rich wet soil and propagates readily by division.

Setcreasea "Purple Heart"

When plants are offered commercially, they must have recognizable names—yet it is not always easy to decide upon their correct botanical designations. Such is the situation regarding a fine setcreasea discovered in a garden in Mexico City by E. J. Alexander and introduced by him in 1945 to The New York Botanical Garden. This plant is now being propagated commercially and will soon be available to buyers of house plants. At the instigation of Alfred Graf of Julius Roehrs Co., I suggest that the common or "fancy" name "Purple Heart" be applied to this setcreasea, at least until its botanical standing is clarified. *Setcreasea* "Purple Heart" resembles

Setcreasea "Purple Heart"

a stout wandering Jew *(Zebrina)*. Its stems are thick and succulent and so, to a less extent, are its leaves. The lat-

(Continued on page 14)

Symphonies of Color

in the Garden

By **Elizabeth Ann Pullar**

THE correlation between a musical symphony heard by the ear and a color symphony seen by the eye is remarkably close. Both have a general unison that is marked by a harmonious combination of tones. Symphonies in color, just as those in melody, are memorable experiences — the rhythm, the harmony, the tune itself, all create an impression upon the mind that lingers long after the actual symphony has disappeared.

Nowhere can color symphonies be conceived with greater appeal than in a garden. Here Nature's colors in a great assortment of tints and shades are combined by the gardener into pictures of quiet harmony. Sometimes a garden with no advance planning will haphazardly achieve a symphony in color that is worthy of recognition. But it is more often in the well-designed garden that one finds the use of color combinations so effectively demonstrated that the garden itself practically sings out in its beauty.

Early in spring after the drab grayness of winter, color in the garden is more welcome than ever. In tune with the season, soft pastel tints daintily blend with the fresh green of new leaves, while deeper, more vibrant shades furnish a warmth often lacking in the later spring pictures. The many spring-flowering bulbs, together with early blooming perennials, furnish delightful colors that may be combined into artistic displays.

A simple planting of mixed Dutch crocus — blue, purple, yellow, and white — is in itself a great joy. These bulbs are most showy when growing thickly so the effect is that of a colored carpet. Blooming beneath the overhanging branches of forsythia Spring Glory, mixed crocus bulbs mingle gaily with the pale yellow bells of the shrub to set both off to their best advantage. Just as the crocuses are fading, the grape-hyacinth Heavenly Blue is coming into bloom. Naturalized beneath the branches of cydonia Coral Beauty, this makes a wonderful union of blue and deep pink.

For a larger grouping of color — pink, pale blue, lavender, and light yellow combine in a tableau of springtime loveliness. The old favorite Darwin tulip Clara Butt forms a clear pink background for the dainty light blue flowers of polemonium or Jacob's ladder. Nestled at the base of these, the lavender, *Phlox divaricata* and pale yellow *Alyssum saxatile citrinum* add their tints to complete the picture.

Late spring brings its charm with the pink and white dogwoods, the soft lavenders of lilacs, and the delicate pinks of the flowering crabs. Surely a woodland planting combining these shrubs and trees is a veritable spring symphony. For contrast in texture and color, trees of the gray birch are pretty interspersed here and there among the dogwoods. Their soft green foliage in May gives an airy effect to the scene and their white bark is always picturesque. Azaleas, too, are happily added to such a grouping, provided harsh reds and incongruous magentas are not included.

Spiraea Vanhouttei may be regarded by some gardeners as a common shrub, but it is good for picture making. When in bloom, its branches droop gracefully to form a pure white background for colorful perennials. Often *Rosa Hugonis* blooms simultaneously with the spiraea to add garlands of yellow roses to the white display. If, in front of this pair, are planted some late Darwin tulips — in red, yellow or clear purple — together with a blue iris, such as Great Lakes or Blue Rhythm, or a clear yellow iris, such as Golden Majesty or Ola Kala, the result will be perfectly beautiful.

Many color pictures may be achieved by using only iris as the plant material. There is a close harmony between so many of the splendid new iris varieties. The smoky buffs, lavenders, blues, pinks, and even yellows can be blended as a rainbow to form a very pretty planting. With discretion, the very brilliant reds and orange of the Oriental poppy may be used as accents in an iris group; or these bright poppies may be placed with lemon daylilies, white sweet rocket, and the royal purple Siberian iris for a brilliant showing.

The stately delphinium lends itself readily to a garden symphony — its height and clear blue coloring are assets that few flowers possess. As a beautiful companion for the delphinium, there is no better choice than the lovely Madonna lily. Planted in groups among light and dark-flowered delphiniums, Madonna lilies will be in a perfect setting. For additional color to this compelling combination, the larger-growing sweet Williams may be planted in the foreground. These are predominantly red and white or pink and white so that they are agreeably related to the blues of the delphinium. If space permits, groups of pink, blue, and white Canterbury bells and also of pink and white foxgloves will be pleasing with the taller flowers. This combination is particularly artistic when flanking the white gateway of a picket fence.

The summer garden features phlox, and today's choice varieties put many colors at the disposal of the garden artist. However, some of them may conflict and they have to be planted with the greatest of caution. Charles Curtis is an almost pure red variety, while Leo Schlageter is a glowing scarlet. Either of these is useful as an accent and in a garden symphony might be compared, perhaps, to the clash of symbols in a musical symphony — startling but definitely a part of the theme. Columbia and Daily Sketch are a nice clear pink and they may be arranged with Pinkette, a soft pink, and with any of the white phlox such as Mary Louise. Many of the pink, lavender, and blue summer annuals can be planted in front of the taller phlox.

Then comes fall with its expected burst of lively colors. Chrysanthemums provide flowers until the coldest of weather. Their wide range of colors serve as the ingredients for garden picture-making at this season. Many of the "mums" have a bronzy golden tinge that combines easily with other yellow and reddish varieties to give the effect of a glowing autumn landscape. Bronze Pyramid, Fred F. Rockwell, Korean Princess, Yellow Avalanche, and Courageous are varieties to blend these sturdy colors.

Color symphonies are often a matter of individual taste. The gardener should strive to attain a combination of tones pleasing to himself; thus, his garden symphony becomes personal, especially attuned to his own temperament. There are a few points to bear in mind when planning for a color symphony in the garden. For instance, repetition in color design, rather than becoming monotonous, often emphasizes good points. This is especially true in a long border where repeating colors tends to bring the whole into a closer unison. This point in garden design is comparable to the musical counterpart — the fugue, which is a composition with its parts repeated.

Colors, too, are a matter of personal preference. Some people like to restrict their gardens to one or two colors only — perhaps a blue garden or one with only pink and white flowers. These gardens may be just as lovely as those boasting a wide range of colors. Blue is a cool hue and creates an illusion of depth in the garden. Red and orange, on the other hand, give a feeling of warmth and tend to foreshorten the garden distance. Yellow flowers serve to brighten dull spots; they are agreeable companions to most other colors. White and pale flowers are useful as a link between sharp colors that do not harmonize. White also emphasizes the comparative degree of color in neighboring blooms of any shade.

Strident tones of red, blue, even orange and some yellows can be used in groups only when tempered with other tints and shades of the same colors. Orange tends to harmonize red and yellow, while purple flowers ease the strong difference between red and blue. If anyone is fond of magenta — whites, lavenders, deep purples, any of the blues, and just a touch of soft yellow may be used with it to make the most of this maligned purplish red.

A garden symphony often relies on more than the colors of the flowers alone. The location of the garden influences the effect as a whole. If the border is exposed to a wide expanse of blue sky, this coloring can be played up as part of the garden picture by planting colors that will tie in with blue. If the garden is confined by the green foliage of a hedge border, then this color, too, must be considered in setting off to advantage the tones of the garden flowers. A yew hedge is dark and emphasizes light flowers accordingly. The texture and foliage of a deciduous hedge varies greatly, and harmonious flower colors should be used as foreground plantings.

Walls and colored fence also influence a flower color scheme. A gray rock wall is a splendid background for Red Emperor tulips early in spring, while later in the season the salmon-pink phlox Sir John Falstaff, together with the soft blue of ageratum, subtly combine with the stone. Rustic fences of brown cedar call for yellows and orange tones and may be beautifully banked with the bright golden African marigolds and the lower-growing French types Spry and Harmony.

In creating a garden symphony, the artist should keep in mind the colors that appeal to him as harmonious companions. These colors should be used in groups large enough to make a clear-cut impression. Too often plants are spaced sparsely here and there with a spotty result. Individual colors need to spread over an area wide enough to insure their being identified from a distance. Once the gardener has improvised his color symphony, there remains only one more task — that of enjoying it!

The stately delphinium lends itself readily to a garden symphony

FOOL-PROOF PERENNIALS

for the Contemporary Border

By Howard W. Swift

EXTENSIVE perennial borders 12 to 30 feet wide belong to a past generation — to the great villas of Europe and to the elegant country estates of America. Many of these large properties boasted not only remarkable perenial borders, but also large gardens for growing quantities of cut flowers, spring gardens featuring bulbs, formal beds of annuals, and rock gardens that were the realm of connoisseurs.

Within the last decade we have observed astounding changes in suburban life — to right or left being problematical — but surely changes keyed to a very functional, mechanized age void of rococo and Victorian frills. Economy of space, simplicity of line, practical location of essential features, and generous color display in sensitive or bold combinations are characteristic of contemporary gardens, and also of the interiors with which they are so intimately associated.

It is often necessary for a single border in a contemporary garden to be colorful and attractive for at least six months of the year, and at the same time to provide a constant supply of flowers for cutting. For a great number of places, a mixed border is most practical, furnishing color from frost to frost with a combination of bulbs, perennials, and annuals. Bulbs can be planted along the front in groups of single varieties, segregated by enough space to allow setting annual seedlings before the foliage has ripened sufficiently to be cut back. (And for northern climatic conditions, there is nothing as satisfactory for providing plenty of color from mid-July until October as annuals.) Perennials are excellent for background material and not only add color in late spring but, if well chosen, also prevent a border from looking too barren before annuals are of any size.

Many plants in the traditional perennial border were of a weedy nature, usurping much space and giving color for only two or three weeks. In such borders — usually seen at a distance as we see Nature's own perennial borders along the highway — their coarse habits were not particularly obnoxious. Their succession of bold color masses throughout the season were effective. However, those perennials which are most desirable for modern use are neat, compact, and easily kept in bounds. Contemporary gardens are intimate and demand use of refined material, to be appreciated at close range. Quality supersedes quantity in making selections.

Borders of all perennials are a heritage from across the Atlantic — particularly England, and a warning may be in order regarding the use of fascinating books on perennials published in England and frequently encountered on our bookshelves. Many perennials which are magnificent in England will not survive the erratic climate characteristic throughout most of the American continent. Because of abundant dampness and a moderate climate particularly conducive to growing a wide variety of plants, flowering seasons are often twice as long there as here. Ornamental plant material provides color for four and five weeks in England as compared to two or three weeks throughout most of Canada and the United States. Many perennials are described in beautiful detail, which are not supplied by domestic seedsmen and plantsmen.

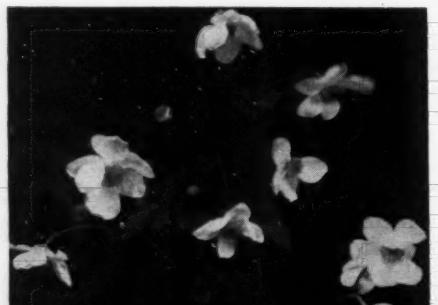
It has been my experience in designing borders that long lists of usable perennials are commonly misleading and have not been reduced to the few which are definitely suited to today's needs. The tempo of today's living prohibits experimenting with unknown values or pampering plants which require more than ordinary care. More stress should be placed on the best varieties of those perennials which are fool-proof than upon attempting to have represented in a garden as comprehensive number of genera as possible. To many of the best perennials little has been added in the way of new varieties, while in others — iris and hemerocallis, for instance — much has been done, and new superior varieties are being placed on the market yearly. To acquire many of these, when they first become available to the public, would be too expensive for most gardeners. New introductions are limited in quantity and are distributed sparingly; therefore, we must wait until there is sufficient supply, lowering the cost.

If many of the perennials found in traditional borders are not suitable to the contemporary border, how may we best group those which are of greatest value for this use? I suggest the following ways:

1. Perennials which are valuable as foil or décor for bulbs in early spring.
2. Perennials which are a substantial attraction in the mixed border from mid-May until mid-July.
3. Perennials which supply bold color in the autumn garden.

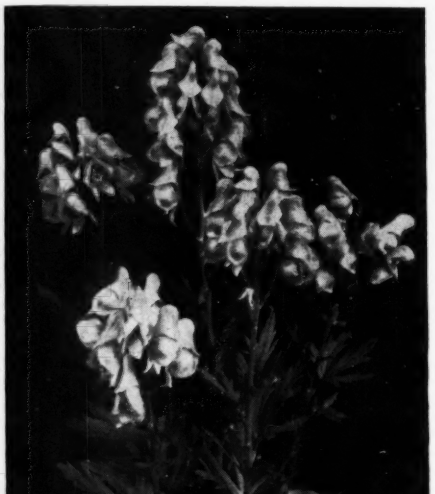
Bulbs properly planted in groups of twelve to thirty of one variety make a great show in early spring, but our pleasure is smartly exhilarated by the additional charm of low-growing perennials in complementary or contrasting color. A list of the most desirable perennials for this purpose would include the following: flowering in April — arabis, aubrieta, and phlox; flowering in May — ajuga, alyssum, and iberis.

Ajuga or bugle gives us some of our richest blues for use with tulips. The foliage clings close to the ground and is very dark green or shaded with dark maroon. The species *genevensis* is one of the best for the border; it does not



Anemone japonica (left) is one of the loveliest of the late perennials

Aconitum (below) holds a prominent place among the perennials



spread as rapidly as does *A. reptans.*

Alyssum saxatile or basket of gold has bright yellow flowers that readily recall the story of King Midas. The variety *citrinum* is soft primrose-yellow and more desirable with pastel shades of pink, rose, or lavender; underplant it, for example, among tulips like Marshall Haig that have yellow petal-bases.

Arabis or rockcress produces masses of small white fragrant flowers in such abundance that the grey-green foliage is all but hidden. As the buds commence to open soon after the last snow melts, arabis is ideal in combination with early species tulips which include the spectacular Red Emperor.

Aubrieta or purple wallcress is a sprawling perennial which offers pleasant contrast among groups of white single or double tulips flowering in April and early May. Varieties range in color from pink to crimson and purple. Eyrei, a horticultural variant of *A. deltoidea,* is rosy lilac and a beauty. Plants may be cut back close to the ground after flowering to make room for annual seedlings.

Iberis or hardy candytuft develops into broad clumps and produces great numbers of plaster-white flowers in slightly flattened clusters. This plant is startling with brilliant flowering bulbs.

Phlox divaricata is light blue in color, showy, and ideal for planting with white narcissus. *Phlox subulata* can effectively be used for creating choice combinations with bulbs. The variety Snow-white intensifies bright reds and yellows, Lilac Queen complements light yellow or cream-colored narcissus, and Vivid, pink with darker center, dramatizes the form and purity of white narcissus such as Beersheba.

Perennials which are a substantial attraction in the mixed border from mid-May until mid-July would include the following as most valuable selections: flowering in May — aquilegia, iris (bearded) and peony; flowering in June — anchusa, astilbe, delphinium, digitalis, hemerocallis, heuchera, poppy, and platycodon; flowering in July — aconitum, echinops, geum, lupine, phlox, thalictrum, and veronica.

Aconitum or monkshood holds a permanent place among the most substantial perennials. Its helmet-shaped flowers, arranged in tall pinnacles, always add dignity to a border. The blues are most valuable, and Sparks' variety, very deep blue, is one of the best for July flowering.

Anchusa I add because blues are seldom too prevalent in any garden and the branched plants, covered with large forget-me-not flowers, furnish a note of richness among larger-flowering specimens. Dropmore variety is recommended — and its familiarity proves its place in lists of the better perennials.

Aquilegia or columbine is a gem in the late spring garden — very effective when used with German or bearded iris. The long-spurred hybrids are exquisite and exciting; but some of the species, such as blue *A. caerulea* and yellow *A. chrysantha,* are very fine additions, as are some of the old-fashioned single or double, short-spurred types which develop into shrubby clumps and have such desirable foliage. These are more permanent than the long-spurred hybrids, and it is unfortunate that more variety is not readily available from nurseries.

Astilbe is selected for extreme hardiness, for its beautiful plume-like broad spikes of flowers, and its clean neatly-cut foliage. Prof. Van der Wielen (white) Peach Blossom (brilliant pink), and Fanal (deep garnet) are outstanding varieties.

Delphinium is grown for its magnificent spikes of showy flowers and, being five to six feet tall, is planted toward the back of a border. Choicest of all are the Giant Pacific Hybrids offered by seedsmen and nurserymen; they are named after "Knights of the Round Table" and include several shades of blue, soft lavender, deep purple, and white. A new series known as Astolot promises an assortment of colors from pale blush through shades of lilac-pink to deep raspberry-rose.

Digitalis or foxglove, with intriguing pendant flowers in steeple-like spikes, adds a stately grace when used either in a perennial border or when naturalized through the edge of woodland. *Purpurea* var. *gloxiniaeflora* has extra long flower spikes in white, pink, and lavender, while Lutz hybrids offer exquisite shades of salmon and pink.

Echinops or globethistle, many would omit from a short list of the best perennials. I include it, because of its decorative mottled foliage and striking globe-shaped, steel-blue flowers which are useful in arrangements.

Geum flowers early and continues to supply brilliant color in the border for weeks. Mrs. Bradshaw, scarlet; Lady Strathenden, yellow; Fire Opal, orange-scarlet, and Princess Juliana, soft coppery yellow, are four popular varieties. As their colors are mostly intense, they must be used with discretion.

Hemerocallis or daylily — great improvement has been made in this tough perennial, which is so often seen growing wild along the highway or by the

open cellar of a demolished farmstead. Hybridizing has made available a wide range of colors in varieties flowering over a long period. Among the choicer varieties not out-classed because of price, I include Carol, rose and salmon; Old Vintage, purple; Glory of Texas, burgundy-wine; Patricia, clear yellow; Cissy Giuseppi, coppery rose-red; and Linda, light amber-yellow marked with soft mahogany. Other fine varieties flower earlier or in August and September.

Heuchera or coral-bells is not a showy perennial, but one which adds delicate beauty and charm to the border for a surprisingly long time. Pink, coral, and crimson varieties are all excellent and have interesting, unobtrusive foliage.

Iris germanica or bearded iris is a true aristocrat, and constant work is being done to extend its color range and magnificence. Of greatest interest are the new pinks, some becoming less expensive as stock increases. Among the most commendable in a reasonable price range are the blues — Azure Skies, Great Lakes, and Blue Shimmer (plicata); purple — Elmohr, Sable, and Deep Velvet; yellows — Berkeley Gold, Golden Fleece, and Moonlight Madonna; white — Matterhorn and Winter Carnival; salmon-pinks — Majenica and Pink Reflection; rose — Mulberry Rose; red — Red Valor and Red Douglas; blends — Tiffanje, Gypsy, Remembrance, Grand Canyon, and Prairie Sunset.

Lupine is so colorful and has such attractive foliage that it is not to be omitted from the contemporary border. Colors include white, pink, red, blue, purple, yellow, orange and salmon — and the Russell hybrids are in every way superior. In most of the United States, except the Midwest, lupines are very hardy.

Papaver orientale or Oriental poppy is an old favorite, familiar for generations in flaming orange — a very difficult color to combine with other flowers. Omitting orange varieties, I commend particularly the following: Curtis Salmon-Pink; Enchantress, soft rose; Sweetheart, clear pure pink; Watermelon, pink like the flesh of that fruit and having a dark blotch; and Red Flame, fiery red marked with black near the petal-bases. The Oriental poppy should be used back in the

What would the contemporary border be without the hardy asters

border, as the foliage dies after the plant flowers.

Peonies dislike being moved, but pay big dividends in beautiful display when finally established. Two types are not to be overlooked in border planning: anemone-flowered singles, which include such outstanding varieties as white Jeanne Lepandry, red Mikado, rose L'Etincelante, and salmon-pink Kinsui; and doubles, which number many superb varieties such as white Frances Willard, light pink Myrtle Gentry, old-rose-pink Martha Bulloch, and rich crimson Philippe Rivoire.

Platycodon or balloon-flower, a favorite in our grandmothers' gardens, is well worth a place in any contemporary border. Popularity is due to its success in the shady garden, but it is equally happy in full sun. Although blue is the most valuable color, pink and white forms are also worth while; another point in its favor is excellent foliage texture and color.

Phlox comes in colors which combine happily with the blues and lavenders of delphinium. Selections might well include Mary Louise, white; Count Zeppelin, white with pink eye; Columbia, light pink; John Falstaff, salmon-pink; and Leo Schlageter, scarlet. Phlox readily self-sows and produces seedlings with inferior flowers — the answer to what many regard as reversion.

Thalictrum or meadowrue would be worth growing for its foliage alone, but its small flowers with conspicuous stamens add a softness to the border which is in pleasing contrast to stiffer perennials. Two of the most desirable species are the pink or purple *aquilegifolium* and the yellow *glaucum*.

Veronica or speedwell has thin spikes of small flowers with prominent stamens. Several species may be considered for the border. *Veronica longifolia maritima subsessilis* has very deep blue-purple flowers and is one of the best; *V. spicata* is available in white and pink, and a trade variety, Blue Peter, is a great improvement over Blue Spire.

The perennials which follow are valuable for supplying bold color in the autumn garden, at a time when most of the flowering plants have passed their prime, and the shrubs and trees turn from neutral green to challenging fall colors. Very often these perennials are more valuable in quantity against a shrub background than in a border, as they take up considerable space for a long time before producing any color. Chrysanthemums are usually best planted by themselves, because they require frequent spraying and watering, weekly pinching until mid-July, and special staking. They are also much more effective when planted extensively rather than in small clumps at the back of the border where, by October or November, they are often left to flower alone.

Anemone japonica or windflower is one of the showiest of the late perennials. It is somewhat difficult to establish and should be given some winter protection the first year. Variety *alba*, single with a yellow center, is one of the hardiest. Other superior varieties are September Charm, soft pink, Alice, rose-pink, and Rubrum, dark crimson.

Hardy asters or Michaelmas daisies have been perfected by hybridization and may be purchased to mature at any desired height. Varieties of merit growing four to five feet are Harrington's Pink, Mt. Ranier, white, and Queen Mary, blue; two to three feet; Beechwood Challenger, crimson red; Frikarti, blue, and Violetta, deeper blue. The last two are outstanding in profusion of flowers.

Chrysanthemums are listed in such an abundance that no attempt is made to recommend individual varieties. Generally speaking, medium to small varieties, listed as garden types, are to be used in mass planting. They stand up under adverse weather conditions best, grow more compactly, and are easiest to combine satisfactorily. Spe-

(Continued on page 14)

What is the Key to
THE CONTROL OF BLACKSPOT ON ROSES?

By **L. M. Massey**

A visitor at The New York Botanical Garden on Rose-Growers' Day, June 5, 1952, queried: "Is blackspot a 'necessary evil'? In other words, if I continue to grow roses, must I expect to continue combating blackspot — or is there some key to control I've missed?"

If our visitor heeds the advice Dr. Massey sets forth in the following article, she will be able to control blackspot which, she complained, "takes the edge off the pleasure of growing roses."—The Editor.

BLACKSPOT, the most serious disease of the rose, occurs wherever the rose is grown, except in areas of little or no rainfall during the growing season. The gardener comes to recognize it early and to learn that measures must be taken to combat this disease, if he is to have good plants and blossoms. It is characterized by black spots on the leaves, yellow foliage, and premature defoliation. Plants affected early in the season may put out a second set of leaves and thus maintain the vegetative condition. Such plants do not mature their wood in the autumn and so suffer more from low temperatures. Diseased plants will bear fewer and poorer blossoms the next season.

There are a number of effective and otherwise satisfactory fungicides for use in the checking of blackspot on roses. Knowledge is at hand on how to use these materials to do the job. "Then," you ask, "why does the disease continue to exist in many gardens?" The question is well put. So let us inquire into the situation to see how the gardener should proceed to keep blackspot under control.

If roses are grown in an area of some rainfall during the growing season, or are given overhead irrigation, blackspot will appear sooner or later — frequently during the first year. The causal fungus *(Diplocarpon rosae)* may have entered the garden on plants from the nursery, or its spores may have been carried by wind-blown rain from a nearby planting. The causal fungus attacks no plant other than the rose. It will not live in the soil, although it will live over winter in the infected leaves, on or in the soil. As soon as these diseased leaves deteriorate, the fungus dies. But here we have an important item in the life history of the fungus. It hibernates in the old leaves on the ground. And it also hibernates in lesions on the stems.

In the spring the fungus begins its activities about the same time the buds open and the leaves appear. Under moist conditions spores are produced by the fungus in the old leaves on the ground, and these spores are splashed to the new leaves, or carried by wind or convection currents. Likewise, spores are produced in the lesions on the stems, and these are also washed and splashed to the new growth. Then the spores germinate if kept moist for six or more hours. The germ tubes penetrate either surface of the leaf, and in two or three days the spots are visible to the unaided eye. Spores are soon formed. These in turn are released in the presence of moisture and are disseminated to infect other leaves. This continues throughout the season, until the leaves fall to the ground and the cycle is completed.

It will be evident that water is essential in the life history of the fungus. It is necessary for spore production, dissemination, germination, and infection. When a plant is wet continuously for as long as six to seven hours, infection may result. It follows that the fungicide must be on the plant during this period of moisture to prevent infection — it must be applied *before* the rain. This is the key to the problem of control. Beginning with the opening of the first leaves in the spring, the plants should not go through a wet period for as long as six hours without a protective coating of fungicide on both sides of the leaves. In normal seasons in northeastern United States, it takes from fifteen to twenty applications per season averaging about one a week, the number depending on the frequency of rains.

What fungicide shall we use, and shall we spray or dust? The dust is easier and quicker and makes timing less difficult. Spraying will do an equally good job, and is preferred by many gardeners. Begin early, be thorough, and keep at it. During the spring when rains are frequent, and new growth rapid, it may be necessary to dust or spray as often as twice a week. New growth must be protected. Later in the season when there are fewer rains and the plant is making little new growth, an application once a week, or once in two weeks, may be adequate. A dry plant will not have blackspot.

As to the chemical, any good fungicide will do the job. Many gardeners prefer multi-purpose mixtures, to control both diseases and insects. Such mixtures are available. Proprietary materials are, perhaps, best for the small garden, since the higher cost is more acceptable than the job of preparing the mixture. Owners of larger gardens may prefer to mix their own.

Simple materials or mixtures, depending on sulfur or copper for their fungicidal action, or some of the newer dithiocarbamates (Ferbam, Dithane Z-78, Parzate) or Captan (Orthocide 406), or others, just to mention a few, are effective if properly used. Timing is the important item — no material will be effective unless the applications are timed to give protection throughout periods of wet foliage. Further, they should be applied thoroughly to to cover both sides of the leaves. The returns from protection against blackspot, other diseases, and insect pests are well worth the cost and effort.

Sanitation is also important. Diseased leaves should be removed and burned as fast as they appear insofar as this is feasible. A fall clean-up of dead plant parts in the early autumn will reduce the quantity of inoculum for spring infection. Spraying or dusting should begin early, with the opening of the first leaves, and the number of early infections reduced to the minimum — to zero, if possible. It is certainly better to keep the garden free from disease and not to have to face the uphill job of cleaning up a severely infected one.

At this time, when 1952 experiences are fresh in your mind, you should make plans for 1953 and locate sources of materials and equipment. The plant pathologists and entomologists at your State Agricultural Experiment Station will be glad to help you.

The Morton Arboretum

By **E. Lowell Kammerer**

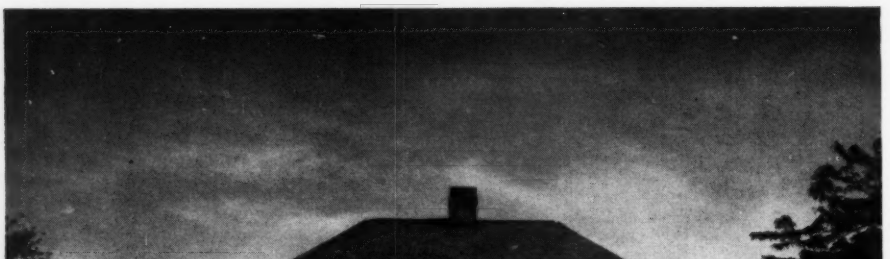
Thornhill Building—south facade, above; north entrance, lower illustration

"THE name of Morton cannot die as long as trees live." These words by Governor Adlai Stevenson of Illinois, honorary chairman and guest speaker at a Commemorative Arbor Day program held at the Morton Arboretum on May 17, 1952, express the profound interest in trees, reforestation, and conservation which has always characterized the Morton family. In addition to commemorating the eightieth observance of Arbor Day, founded in 1872 by J. Sterling Morton, Nebraska pioneer and statesman, and the thirtieth anniversary of the founding of the Morton Arboretum in 1921 by his oldest son, Joy Morton, tribute was paid at this ceremony to the present generation of the family, Mrs. Joseph M. Cudahy and Sterling Morton, daughter and son of the founder, whose devoted interest in the Arboretum has continued since their father's death in 1934. Three historical societies, the Illinois State, the Chicago, and the DuPage County, jointly planned this three-generation Arbor Day celebration, and for the occasion earth was sent from all forty-eight states to be spread around the three trees planted in commemoration of the event.

Joy Morton's interest in arboreta began in 1874, when as a young man of nineteen he accompanied his father on a visit to the Arnold Arboretum in Boston. So deeply impressed was he by this newly-established institution that he made up his mind, if he was fortunate enough to be a success in the business world, he would found and endow an arboretum in the Middle West. Good fortune favored him and his boyhood ambition eventually became a reality.

During the important period preceding and immediately following the establishment of the Morton Arboretum, Mr. Morton was most fortunate in having the counsel and advice of his good friend, Professor Charles Sprague Sargent, director of the Arnold Arboretum, who took a personal interest in the planning and initial planting of this new mid-western woody plant garden. And, for the significant contribution both he and the Arnold Arboretum have made to its development, the Morton Arboretum owes an everlasting debt of gratitude.

Mr. Morton began the preliminary planning for his Arboretum prior to 1917, plans which materialized in the fall of 1921. At that time, two hundred acres of the nineteen-hundred acre



Administration Building, Morton Arboretum

Morton Farm in the Chicago suburban area were set aside specifically for arboretum use creating, to quote from the original declaration of trust, "a foundation to be known as the Morton Arboretum, for practical, scientific research work in horticulture and agriculture, particularly in the growth and culture of trees, shrubs, and vines by means of a great outdoor museum arranged for convenient study of every species, variety, and hybrid of the woody plants of the world able to support the climate of Illinois, such museum to be equipped with a herbarium, a reference library, and laboratories for the study of trees and other plants, with reference to their character, relationship, economic value, geographical distribution, and their improvement by selection and hybridization; and for the publication of the results obtained in these laboratories by the officials and students of the Arboretum, in order to increase the general knowledge and love of trees and shrubs, and to bring about an increase and improvement in their growth and culture."

Since its inception, expansion and improvement have continued without interruption and today the Arboretum includes an area eight hundred thirty-five acres in extent, accessible by a fifteen-mile system of surfaced roads, over twenty-five miles of trails and marked pathways, and a woody plant collection consisting of approximately four thousand species, varieties, and hybrids. The achievement this represents can be better appreciated when it is understood that there were only seventy species of indigenous trees, shrubs, and vines (excluding the numerous native hawthorn variations) within the limits of the Arboretum grounds when the initial planting was begun. During the first spring alone, one hundred and thirty-eight thousand trees and shrubs were set out, with sizeable subsequent plantings following each year.

Favored by an exceptionally choice site, not only from the standpoint of existing native woodland, varied topography, and soils, but also as regards accessibility to the entire Chicago region, the Arboretum affords ideal conditions for growing, testing, and displaying ornamental plants. The limitations of the collection are climatic rather than geographical, with the objective being to grow representative specimens of all the woody plants of the world able to survive the climate of northern Illinois.

In determining the system of plant arrangement within the Arboretum, practicability and usefulness were stressed. The plan adopted provided for the grouping of trees and shrubs in generic groups with no attempt at strict taxonomic sequence; for their segregation in geographical plantings according to native habitats; and wherever potential forest value existed, in test forestry plots. A fourth group, the landscape plantings, demonstrates the esthetic uses of woody plants.

Morton Arboretum visitors are al-

Lower level of hedge collection viewed from garden of old-fashioned roses

January thaw at the Morton Arboretum —the thuja collection in the background

ways attracted by the natural beauty of the grounds and by the pleasing way in which introduced plantings have been blended into the naturalistic background. The deep woods have been left practically undisturbed and the characteristic "oak openings" and sunlit meadows, so typical of northern Illinois, kept intact.

In addition to the scenic beauty of the native woods and wild flowers and the interest afforded by the botanical plant collections, the Arboretum offers the following attractions:

The Hedge Garden. This formally arranged, tree-enclosed landscape feature, which serves as a practical hedge demonstration planting, affords an unequalled opportunity for first-hand observation and comparison of the effects of formal clipping on a wide range of woody plants. Some of the hedges have been under observation for twenty-one years. There are in all one hundred twenty-four types of trimmed hedges as well as fifty-two examples of informal (unclipped) hedges.

The Groundcover Collection. This collection features seventy-two plots of woody and herbaceous groundcover plants adaptable to various soils and moisture conditions and to different degrees of shade and exposure.

The Garden of Old-Fashioned Roses. A formal planting, inspired by the plan of the holly garden at Williamsburg, provides an appropriate setting for some three hundred old roses, principally the Cabbage, Damask, French, and Moss varieties of yesteryear. It is the highlight of mid-June.

The Hybrid Lilac Collection. The planting of approximately five hundred varieties of hybrid lilacs includes most of the newer introductions. Their flowering season is mid-May. A collection of one hundred thirty-one species of lilacs continues the display until late June.

The Flowering Crabapples. One hundred sixty kinds of flowering crabapples are grouped according to habitat. Their early May floral display is rivalled only by their autumn fruit effects.

The Nature Trails. Three well-marked Nature Trails, the Forest (featuring wild flowers, trees, rocks, etc.), Evergreen (evergreens), and Thornhill Trail (emphasizing plant identification), offer self-instruction in natural history out-of-doors at all seasons of the year. Each trail has its accompanying guide book and work sheet.

Arboretum activities are centered in two buildings. The Administration Building, erected in 1935, houses the administrative offices and information bureau as well as the reference library and herbarium. The library includes a choice collection of rare arboricultural and horticultural works, in addition to a very complete collection of modern books and periodicals dealing with all phases of arboriculture, dendrology, horticulture, gardening, landscape architecture, and related subjects. The herbarium comprises a collection of fifteen thousand sheets of pressed specimens of hardy woody plants, supplemented by representatives of the indigenous herbaceous flora of the Arboretum.

The Thornhill Building, completed in 1942 on the site of the Founder's home, "Thornhill," provides every facility for carrying on the Arboretum's ever-expanding educational program. In addition to the beautifully panelled library wing, originally a part of Mr. Morton's residence, there are offices, class and exhibition rooms, a photographic laboratory, and a large lecture hall commanding a superb view into the Arboretum. This view was one of the attractions influencing Mr. Morton's choice of this site for the Arboretum.

The general objectives of the Arbo-

retum follow closely the aims and ideals outlined by Mr. Morton in the original declaration of trust, special stress being placed upon popular education, particularly in respect to increasing the general knowledge of trees and shrubs. Research has thus far been confined chiefly to acclimatization studies and problems relating to propagation, culture, and maintenance.

The educational program of the Morton Arboretum, which is carefully planned to benefit adults and children alike, is accomplished through several media. Organized courses in nature study throughout the year present a friendly knowledge of the natural sciences. Life histories, habits, associations, folk lore, and identification are all considered, with special emphasis placed upon trees, shrubs, and wild flowers. Birds, mammals, rocks, and ferns are also included, however. Courses in adult and junior leadership help teachers, parents, Girl Scouts, Boy Scouts, junior foresters, and other interested individuals to become proficient in nature study and its instruction. Gardening classes are offered twice a year, and in winter there is a ten-weeks' course in "Landscaping the Home Grounds." A summer sketch class appeals to those with a flair for drawing and contributes to the awareness and appreciation of the color, texture, and form of plants. These classes are supplemented by special lectures and conducted field trips during the months of May and October. All of the above instruction is offered free of charge.

The "Bulletin of Popular Information," published monthly, enjoys an ever-increasing circulation. Its timely information on results of experiments with plant materials and on other subjects of related interest is helpful to both the scientist and the layman. The Bulletin is sent free of charge to many botanical gardens and arboreta throughout the world and is available at a small charge to all interested individuals.

Within the last few years, the Arboretum has welcomed a new neighbor adjoining its east boundary, the Drug and Horticultural Experimental Station of the University of Illinois. Established on ten acres purchased from the Arboretum in 1944 and on forty additional acres leased for experimental plots, this station will be devoted to educational and research problems pertaining to drug, vegetable, and horticultural crops.

The Morton Arboretum is a private foundation supported by a generous endowment provided by the founder, Joy Morton, who stipulated specifically that it must ever remain an unaffiliated institution, under the administration of a self-perpetuating Board of Trustees.

The Arboretum grounds are open from sunrise to sunset every day of the year. Well-marked roads, paths, and parking places are provided for the convenience of the thousands of visitors who make use of the facilities provided for them. The scientific staff and all other employees are prepared to give assistance to all visitors, and it is an Arboretum policy to be as helpful as possible to anyone seeking information about plants and planting, whether it be by personal contact, telephone, or by letter.

The Morton Arboretum is located in DuPage County, twenty-five miles west of the Chicago Loop, on Illinois State Highway 53, one mile north of Ogden Avenue (U. S. 34) in Lisle and three miles south of Roosevelt Road (U. S. Alt. 30) in Glen Ellyn. By rail, it may be reached by the suburban service of the Burlington R. R. (Union Station) to Lisle or by either the Chicago, Aurora and Elgin Electric (Wells St. Station) or the Chicago and Northwestern Railroad (Northwestern Station) to Glen Ellyn. Cab service to the Arboretum is available from both points.

HORTICULTURAL COMMENTARY (from page 4)

ter are elliptic, stem clasping at their bases, and may be as large as seven inches long by almost one and a half inches broad, but are usually rather smaller. The leaf margins—and sometimes their upper surfaces more sparingly—are furnished with long silky hairs. Stems and leaves, particularly the latter on their under sides, are richly suffused with purple and are covered with an attractive waxy bloom. The coloring develops its greatest intensity when the plants are grown in full sun. The flowers, of less importance from a decorative point of view than the foliage, are in terminal clusters, each cluster subtended by a pair of large leafy bracts. The individuals are about three quarters of an inch across and have three carmine-pink petals and contrasting yellow stamens. Like all its relatives *Setcreasea* "Purple Heart" is very easily propagated by cuttings. It thrives in any well-drained soil.

FOOL-PROOF PERENNIALS (from page 9)

cial attention should be paid to the colors most prominent in shrub backgrounds. Whites which become tinged with rose, and yellows which become a dirty brown, as they reach maturity, should be avoided, and varieties which tend to have a "washed-out" appearance should be used sparingly. Flowers last so long that the aging quality is most important. Selections are most happily made from plants growing outside in borders rather than from catalog illustrations.

Liatris or blazing-star is a lavender-blue flower of real value in the autumn garden; its narrow cylindrical spikes always attract attention. The species *pycnostachya* flowers from August into September; September Glory, a purple hybrid of *L. scariosa,* flowers abundantly in September.

Most desirable of all, in selecting perennials for a contemporary garden, is to avoid those with weedy habit of growth, to plan for varieties being used in bold masses, and to recognize the importance of hardiness.

ANNOUNCEMENT

J. Mark Kerans died suddenly December 10, 1952, just as this issue was going to press. Mr. Kerans became Administrator of The New York Botanical Garden on June 1, 1950, and later also assumed the duties of Assistant Treasurer of the Garden and of Business Manager of "The Garden Journal." His death came as a distinct shock to the Board of Managers and employees of The New York Botanical Garden.

PLANTS AS FOOD

in the South Pacific

By **Elizabeth S. Williams**

PLANT LIFE in the South Pacific islands is synonymous with homes, clothing, and medications, but primarily with food.

In the Fiji Islands, houses are called vales or bures. They are simply constructed. The boles of coconut palms form the supporting poles and rafters, bound together securely with thousands of feet of sinnet (rope) made from the brown fiber of coconut husks.

To decorate great buildings, such as meeting houses or homes for Ratus (princes) or Bulis (chiefs), shells are elaborately threaded with the sinnet. Over the frame of the houses is spread a roof of kikai fronds (coconut leaves) with strong fibrous ribs which are soaked in salt water and dried under the sun's hot rays. As many as seven layers of the fronds are necessary to make the building waterproof, with thousands of feet of sinnet to hold them in place. Sinnet is made by the oldsters of the village, as they sit in the shaded doorways of the bures or under the spreading branches of a rain tree or flowering cassia.

The walls are adobe style of clay or of woven matting. As a rule, these mats are made of the leaves of the screw-pine or pandanus *(Pandanus tectorius)* growing as wide hedges immediately back of sandy seashores to protect the villages from destruction by great waves during the hurricane season — December to March.

The floors are earthen or of coral sand, covered with several layers of mats, making it soft for the bare feet of the native men as they stand erect, or for the knees of the women and children as they crawl about in humble fashion. No furniture is necessary. Everything — sitting, dancing, eating, and sleeping — is done on the floor. The precious tapa cloth, that formerly served as the only clothing, is simply stored in bundles of matting, tied with sinnet and tucked behind low rafters.

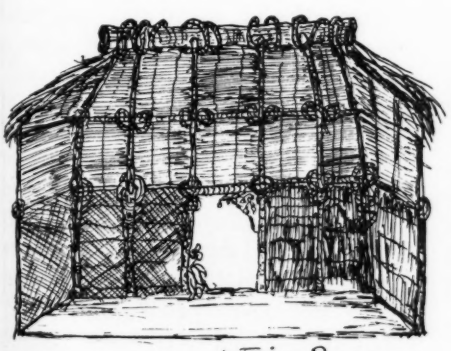
Tapa cloth is made from the bark of the paper-mulberry tree, boiled to a mash and pounded out into a cloth. The plain white tapa, worn about the waist as a sulu skirt, is a sign of mourning; other tapa has a pattern stenciled on it with brown or black dyes procured from the soil. It has uses, not only as sulus, but to wear about the shoulders in the cool of the evening or to hang as drapes over rafters or doorways. The cloth requires untiring efforts on the part of the women and is treasured as "Na i divi" (mementos) from generation to generation.

Houses in Samoa, called fales, differ altogether from the Fijian or generally accepted Polynesian or Melanesian house. The framework is oval-shaped, the dome roof covered with thick matting of coconut or pandanus leaves. The sides are entirely open, with movable screens of braided fronds serving as the only protection from sudden rains and blows.

There are two types of Islands in the South Pacific. The high volcanic islands are lush with variegated green vegetation, fresh water with springs, waterfalls, rushing streams, and great heights of peaks and cliffs. There is moisture in the clouds that hover almost continually over the islands. The low-lying islands, barely above sea level, are of glaring white coral. They are called atolls. No springs nor soil encourage plant life — except the everlasting hardy coconut palm found in all tropical and sub-tropical lands not actually covered by water.

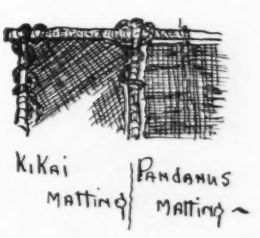
The nut of this remarkable tree is waterproof; it can float on the ocean waves for long periods of time. The waves wash the little brown nuts onto the shore, where the hot sun quickly dries them. The nut germinates sprouts, and behold! a tree is born, to start a new cycle of growth. Birds are beckoned to these small atolls by waving crowns of pinnate leaves as they move in the breeze, seventy to one hundred feet high in the air. Tireless birds, like the blue-necked tern or the bo'sun or booby birds, which fly thousands of miles out at sea, carry seeds of all kinds tucked in the soft feathers of their wings.

The nut of this remarkable tree, the coconut palm *(Cocos nucifera)*, has many uses. When about three years old, it is soft green in color and texture, smooth of shell, and can be torn open by the strong white teeth of the



INTERIOR BURE ~

EXTERIOR BURE ~



ELIZABETH S. WILLIAMS ~

native men. Inside the husk the fiber is honey-colored — and pliable enough to make an excellent body brush. There are three eyes in the hard shell of the nut proper; when pierced, a clear sweet water flows out. This is called "Nu" in Polynesia. It contains rich vitamins, is easily digested — a good substitute for mother's milk. The meat of this young nut is white and tender, to be scooped out with the fingers.

In another three or four years the nut has fully matured, is a grey-brown color, ribbed and wrinkled. It falls or is blown from the trees — or the native boys and men will run up the bole, skillfully clinging to the almost smooth outer surface with their bare hands and feet, and carrying a sele (knife) in their teeth with which to chop the nut from the cluster and toss it below. The nuts are gathered, husked, and split in half after the thirst of everyone is quenched with the sweet water. The halves are exposed to the hot rays of the sun until the meat of the nut curls away from the shell. This is called copra. It is packed into jute bags, weighed, and shipped to the outside world on small cargo schooners that ply the South Seas and follow dangerous routes through wide coral reefs to bring supplies to the Islanders in exchange for their one hundred pound sacks of copra.

There are factories in Suva, the capital of the Fiji Islands, in New Zealand, and Australia, as well as in the western world, where the copra is put through a heating process to obtain oil for the manufacture of candles and cosmetics.

For their own consumption the natives boil, over their small fires of coconut husks, the copra with the fragrant petals of the frangipani flowers. By continuous application of the oil to their brown bodies, they prevent the blistering sun from drying out their skin and also make their coarse black hair quite waterproof.

The meat of the mature nut can be grated and pressed through a cloth, making a delicious cream — in fact, the only cream the natives get. In the tropics, it is difficult to raise domestic cattle—tuberculosis is extremely prevalent — and only recently have the native men been given the opportunity to study husbandry and farming.

The water of the mature nut solidifies, so it looks and tastes like a good-sized, sugared dumpling. This can be eaten raw or boiled with mummy apples or papaya *(Carica Papaya)* into a golden-colored pudding — or fed to the pigs and chickens.

There is a delicious sap at the crest of the coconut palm tree, which is used to make a nourishing drink called "Toddy." To keep the sap running freely, an abrasion is made and an irritant mixture of chilis and red peppers (indigenous plants) is rubbed in the opening of the cut. The sap is attracted to the open wound as a healing agent and flows for a few days into a container which has been fastened to the tree; then a scab forms which stops the flow — nature's way of protecting the tree from being depleted of sap. The scab or crust must be removed to start the sap flowing again. This process can be kept up for about six months; then the tree must rest for a similar period of time.

"Toddy" is an excellent tonic, which ferments easily, much to the delight of a few people, of course.

"Millionaire salad" is known to Europeans, as the natives will generously forfeit at least a year's growth of a palm tree to provide this delectable dish for their friends, the pakehas (white men or women). It is made of the tender shoots that appear in the tip-top of the palm tree and are similar in looks and taste to thick white asparagus tips.

Used medicinally, coconut oil can be taken in- or externally. It can produce wonderful cures, principally with the aid of the natural curative elements and vitamins found in the daily foods of all Islanders, even those who live on atolls where the only available food consists of coconut, raw fish, and shell food.

To continue in detail about the variety of foods and plants is to write a full length book. Let me, rather, ask the readers of "The Garden Journal" to join me at a "lai lai kai" — small dinner — on the remote island of Matuka, one of the two hundred and fifty Fiji Isles. The dinner will be served as the sun sets and darkness suddenly envelopes this land "down under," where there is no lingering twilight.

On the matted floor are coconut flares. These are made of half shells of

the nut filled with coconut oil; the wick is a bit of kapok wound about a twig or, perhaps, a small oily candlenut. The little lamps cast fantastic shadows on the walls and vaulted ceilings of the bure, as girls crawl about quietly placing food on long banana leaves before us. First, a cornucopia of shiny breadfruit leaf holds a warm gumbo of octopus, cooked in sea water. This soup is made from little black octopuses gathered on the reefs at low tide. Delicious! Next, a generous piece of starchy breadfruit, grayish in color, is eaten with the fingers — there are no utensils other than a huge "Na i sele" (cane knife).

The breadfruit tree *(Artocarpus altilis)* is magnificent, standing straight and tall, of wood hard enough to use in the making of outrigger canoes and lalis (native drums). The fruit of the tree is borne directly on the trunk and larger branches and is not to be eaten raw, but boiled, fried in coconut oil, or roasted. It is a green globose fruit covered with short protuberances.

Another dish is a handful of small round turtle eggs, boiled. The white of the eggs does not solidify with cooking. A native can suck the egg from the shell — but not I. My shell cup comes into use, as I break two eggs into it, then drink them.

Tender young weeds serve as spinach; a wooden bowl holds succulent chucks of raw fish marinated in a mixture of coconut cream, lime juice, salt, and chilis. Dessert is a Fiji tree-ripened banana, justly credited with being among the best in the world. There are numerous kinds of bananas — some no more than four inches long, the pulp fluffy and soft. In contrast there are others growing to eighteen inches, hard and evergreen; these take long hours of boiling to become edible.

At every meal coconut water is plentiful.

At an "Umakai"—a great feast—on Puka Puka in the North Cook Islands, the Buli (chief) and I sat cross-legged on a floor of fresh leaves. Coconut flares lighted the open-sided meeting house with high-domed roof of kikai. Around us stood four hundred villagers, their big brown eyes watching every move we made.

Before the chief was a kava bowl. Several lower-caste men knelt behind him to hand him dried yongona roots (pronounced yon-gon-a) that looked like bits of shredded manila rope. The roots were put in the bowl; a servant poured fresh water from a bamboo sprout; and the Buli squeezed the water through the roots. It was a long, solemn occasion. Not a word was spoken inside or outside the meeting house. When the bowl was well filled with the innoxious liquor, a servant crawled to a front position and handed the Buli a coconut cup. He filled it, returned it. With extreme care the cup was brought by the servant, on bended knees, across the leafy floor to me. I drank the liquid, returned the cup, and waited with downcast eyes while the Buli drank copiously — he enjoyed the cool, uninviting, dusty-colored kava. When the Buli finished, he threw the cup down and activity commenced.

Heaps of drinking nuts were stacked about the space; on the leaves were mounds of breadfruit and lumps of pudding made of boiled tapioca (cassava) root mixed with mummy apples or papaya; bright red crabs; and shell fish of mysterious types. In front of me, on a fresh banana leaf, rested the uncooked head of a fifty-pound walu. The face of the fish, mouth open, showing sharp spiked teeth, looked directly at me; sightless pale blue eyes glared into mine. This was, indeed, a challenge! With so fascinated an audience watching my every move, I dared not falter. Carefully I peeled off the dark skin, removed bits of raw flesh from the bones, dipped the flesh into a cup of coconut cream and ate. It was really very good; I smacked my lips loudly and smiled at everybody. They were delighted.

Next came the eyes; these I pulled out and ate, one at a time. They were like skinless grapes with a hard ivory pit in the center, which had to be removed.

A little naked boy disappeared from the crowd pressing behind me — then pushed his way back. In his two little hands were cupped other eyes he had gathered from dead fish on the ground! "Sega sega" (no, no) I laughed.

For fruits, I saw luscious mangoes, guavas, pandanus buds, and five kinds of so-called apples: vi-apples *(Spondias cytherea);* Polynesian plums; star-apples, round, smooth, and pur-

(Continued on page 21)

RAMIE—THE CHINESE SILK PLANT

By J. F. Joyner, E. O. Gangstad, and C. C. Seale

RAMIE is known to English-speaking peoples for its high-quality lustrous fiber. The most important fiber species, *Boehmeria nivea* Gaud. (*Urtica nivea* L.), is of East Asian origin and has been cultivated for many centuries. It is a member of the nettle family, Urticaceae, but does not have the stinging hairs common to most of the urticas.

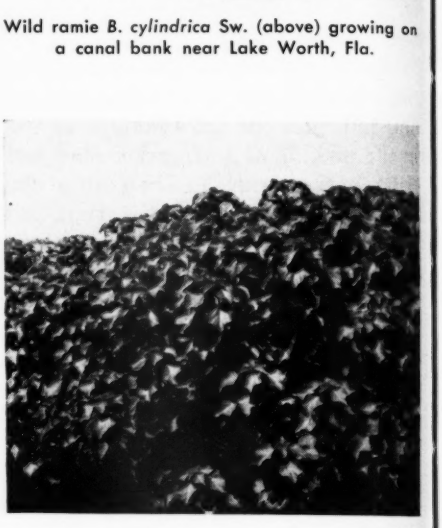
The species of *Boehmeria* observed in Florida are *B. cylindrica* Sw., wild ramie; *B. utilis* Bl. (*Urtica nivea tenacissima* L., *B. tenacissima* Gaud., *B. candicans* Hussk), green ramie; and *B. nivea* Gaud., white ramie. The species *B. cylindrica* is adapted to temperate and sub-tropical climates. It is found as far north as Ontario, Canada. In South Florida, it grows along the banks of canals and streams and is observed to have a high tolerance to flooding. The plant has a relatively short top growth, two and a half to three and a half feet, and a highly branched, fibrous root system. Wild ramie is not suitable for cultivation as a fiber crop.

Green ramie, *B. utilis*, is the plant commonly referred to as *rami* and *rhea* from Malaya and India. The under side of the leaf is green in contrast to the silvery white under leaf surface of white ramie. The plant tends to persist in large clumps, and the top of the main axis is quite branched. Although the plant flowers profusely, it does not set seed well in Florida or elsewhere. Selections of green ramie from widely separated areas are quite similar. Green ramie does not grow well in Florida, but is reported to produce high yields of fiber in the tropics.

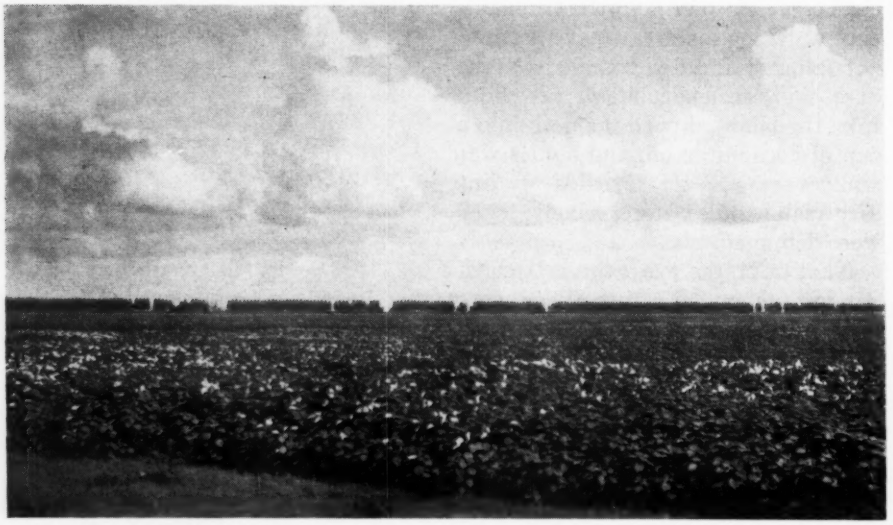
Commercial production of fiber from ramie has been largely limited to *B. nivea* Gaud., the Latin *nivea* (snow) referring to the silvery white under surface of the leaf. The plant, a perennial, reproduces from a dense system of rhizomes, which give rise to many young shoots, fibrous roots, and specialized storage roots. The rapid regrowth of ramie after cutting appears to be related to the food reserves of the storage root.

(Continued on page 21)

Wild ramie *B. cylindrica* Sw. (above) growing on a canal bank near Lake Worth, Fla.



A variety test planting of green ramie, *B. utilis* Bl. (above) at the Everglades Experiment Station, Belle Glade, Florida.



A commercial planting of white ramie, *B. nivea* (L) Gaud., Plant Introduction 87521 at Newport Ramie Plantation, Canal Point, Florida.

Female flowers on the upper portion of a white ramie stalk *B. nivea* (L) Gaud.

Herbs—

in Ukrainian Folk Medicine

PART II

By N. Ossadcha-Janata

UNTIL the nineteenth century herbs were made into decoctions, tinctures, ointments, and oils. The first alkaloids were isolated in the early part of the nineteenth century. In 1804, a German pharmacist isolated morphine from opium. In 1833 the alkaloid hyosciamin was isolated from the leaves of *Hyoscyamus niger,* and a little later other alkaloids of the atropin group were discovered.

Between 1817 and 1835, many discoveries were made in the field of alkaloids. From about 1860, progress in the application of organic chemistry to medicine was so rapid and so many patent medicines began to appear on the market that interest in the use of herbs began to decline among the general public. However, about 1890 attention turned again to remedies made from plants.

In Germany, France, England, Italy, Japan, Russia, and the Ukraine, scientists began to make chemical and therapeutical studies of the local flora in order to discover new medicinal uses. In Germany, for example, during World War I, *Capsella bursa-pastoris* Moench, a weed growing all over Europe, was used instead of the imported *Hydrastis canadensis* as a styptic.

Pharmacological experiments and clinical studies of *Anemone Pulsatilla* in France (1936) gave evidence that this herb could be used as a sedative in connection with disturbances of the nervous system, and ever since it has been used in treatments. (Lecl.)

Recently in Germany (Erlangen 1940) in surgical clinics for mouth and maxillary diseases, extracts from *Arnica montana, Calendula officinalis* and *Hypericum perforatum* were used in the treatment of wounds instead of the customary chemical preparations. These experiments led to surprisingly positive results.

In Russia *Adonis vernalis* and *Convallaria majalis,* used in folk medicine for various diseases, including those of the heart, became officially employed as cardiacums; *Polygonum hydropiper* was officially taken over from folk medicine as styptic to stop bleeding, and *Ephedra distachya,* containing hydrochloric acid salts of ephedrine, and used as a substitute for adrenaline for the treatment of asthma and high blood-pressure, at the end of the last and the beginning of the present century was adopted by official medicine.

More recently, in the Ukraine *Peganum Harmala* has been investigated and introduced into medicine for the treatment of sleeping sickness as a complication from encephalitis lethargica (State Pharmacopoeia Narkomsdrav, USSR, 8th ed.).

After a thorough study of new medicinal herbs in Russia, a number of these were recently introduced into medicine, such as *Senecio platyphyllus* DC., which grows in the Caucasus and contains the alkaloid platyphyllin, which, in its therapeutical effects, resembles atropine; *Thermopsis lanceolata* R. Br. from Central Asia and Siberia, which contains five alkaloids and is used as an expectorant medicine; and *Erysimum canescens* Roth, growing in the Ukraine and the Crimea, which yields erysid, a very active substance that is used for the treatment of certain heart conditions.

Extensive scientific research on medicinal herbs and oleaginous plants containing volatile oils is being carried out in the USSR in research institutes, botanical gardens, academies of science, and universities in order to improve the nomenclature of medicinal plants and to substitute local flora for the expensive imported herbs. There are different approaches to this problem, such as an extensive exploration of folk medicine (in the historical and national sense) and a thorough survey of the entire flora of the USSR.

The following institutions in the Soviet Union devoted, to a large extent, their efforts to the study of and exploration for new medicinal plants: the All-Union Scientific Research Institute for Chemistry and Pharmaceutics, with numerous branches in the various republics, the All-Union Soviet Institute for Medicinal Plants, with its network of local experimental stations, and the Soviet Institute of Oleaginous Plants. In the Ukraine, exploration for and practical application of new medicinal herbs were carried out in these institutions: the Ukrainian Scientific Research Institute for Applied Botany (1927-1933), the Ukrainian Institute for Experimental Medicine (1935-1937), the Ukrainian Scientific Research Institute for Chemistry and Pharmaceutics (1937-1941), all in Kharkov, and the Kiev Botanical Garden attached to the Ukrainian Academy of Science.

The above-mentioned institutions in Russia and in the Ukraine conducted a thorough and extensive investigation and study of new medicinal plants, observing them under cultivation and as they were used by the populations in the villages, which could be learned only by word of mouth. For this purpose numerous scientific expeditions were sent out, even to the remotest republics. The plants were studied in chemical and pharmacological laboratories, and the most appropriate and suitable specimens were passed on for further study to veterinary and medical clinics.

In the Ukraine, research on new medicinal plants was conducted in two directions. In one, a survey of the local flora was made in order to discover new species, and the trial of as yet untried species in those botanical families to which belong certain species already

used for medical purposes, such as the Liliaceae *(Convallaria majalis)*, the Ranunculaceae *(Adonis vernalis)*, the Scrophulariaceae *(Digitalis)*. In the other, the line of research aimed at exploring those plants of the local flora which since time immemorial had been used by the population for medical purposes, i.e., the study of folk medicine.

Of particular interest were those plants which are extensively used by the population of geographically widely separated regions for the same disease, such as *Nymphaea alba,* a folk remedy in thirty-five villages in the Ukraine (author's data), *Delphinium Consolida,* in fifty-nine villages; and *Hypericum perforatum,* in ninety-one villages.

There exist, however, certain plants which deserve close investigation even though they are not too widely known and used in folk medicine. One of these plants is *Peganum Harmala* of the Zygophyllaceae, a weed which has come from the Crimea to southern Ukraine (it occurs as far north as Kirovsk). It grows on the steppes, along river banks, and in the Sivash region (coastal salt marshes); it is often found at the site of former Tartar settlements. European medicine early used the seeds of this plant for the treatment of eye diseases, as a vermifuge, as a soporific. The peoples of the East have also held this plant in highest esteem since time immemorial. The active principle from its seeds makes a person gay and exultant. The "douvans" (simple-minded, kind of village fool) of Kokhara used to inhale the stupefying smoke of these seeds. The capsule contains a valuable red dye "Turkish Red" used in Turkey for the dyeing of tarbooshes.

In 1929, on a scientific expedition exploring southern Ukraine, it was noticed that in twelve villages of the districts of Melitopol and Kherson, the inhabitants, natives as well as newcomers, were using the roots of *Peganum Harmala* for the treatment of rheumatism and nervous afflictions. The seeds and the root of this plant contain the alkaloid harmine. The stems and flowers contain, in addition, the alkaloid peganine, while the seeds also contain the alkaloid harmaline. The chemical, pharmacological, and clinical analysis of this plant yielded positive results and the plant has been introduced into the State Pharmacopoeia of the USSR, VIII ed.

Scientific Field Trips for Medicinal Herbs

Over a period of several years (1927-1939) the above-mentioned Scientific Research Institutes in the Ukraine organized scientific field trips to discover medicinal herbs. Their task was to investigate on the spot the occurrence of herbs used in official and folk medicine, their distribution, number and possible preparation, and, above all, to record the information given directly by the local population on the usages made of these plants for medical purposes, which had never been previously recorded in written form.

In such a manner, one hundred forty villages and their surroundings, chosen in different areas, were investigated in the provinces of Kamenetz-Podolsk, Zhitomir, Kiev, Vinnitza, Odessa, Nikolaev, Poltava, Chernigov, Kharkov, Stalinsk, Voroshilovgrad, Zaparoshie, and the Moldavian Soviet Republic. (The itinerary and later the reports of these expeditions were discussed jointly with representatives of various institutions for botany, medicine, veterinary medicine, chemistry and pharmaceutics.)

In organizing these expeditions, it was essential to establish an appropriate itinerary and to select suitable places, taking into account several basic factors. It was important to know whether collectivization had already been introduced. A stable, old-established population that has lived for many generations in the same place is likely to have preserved ancient traditions, customs, and mores, transmitted by word of mouth from generation to generation, including its knowledge of medicinal herbs. On the other hand, collectivization means the disruption of the normal life of the village and changes completely the life of the people. As a result many of the older people who were familiar with the various herbs died. Therefore, the first expeditions selected the regions on the right bank of the Dnieper, where the population was well settled and where collectivization had only lately been introduced and thus had not yet disrupted the normal life of the villages.

In order to cover the field as completely as possible, the areas chosen included woods, meadows, steppes, rivers, and barren stretches of land. Regions little explored by botanists were also given preference. A field trip usually lasted sixty to sixty-five days and took place during the summer, the members working without a single day of leave. The expedition consisted of a senior botanist, an assistant botanist, and a pharmaceutist or physician. Upon arrival in a village the expedition, advised by the village soviet, contacted the villagers who were familiar with herbs. For two days the expedition explored the flora of the surroundings, accompanied by the village experts, and recorded the occurrence of medicinal herbs pertaining to official and folk medicine, and their distribution and quantity with a view to possible exploitation. At the same time, the scientists noted down all the information they could obtain on the practical use of herbs in that particular village. On the third day, they moved on to the next village.

During the years 1927-1939, the expeditions (1) visited 140 villages; (2) recorded 5,765 items of information on the use of herbs; (3) recorded 646 species of plants used medicinally; and (4) interviewed 553 persons to obtain this data. Each expedition gathered during the summer between 500-625 plant species, of which 50-60% were herbs used by the local population of the given region as folk medicines. From all these field trips, an herbarium containing about 15,000 sheets was assembled. Not only herbs but other plants, which were typical of the vegetation and nature of a given region where certain medicinal plants grew, were collected. Abundant literary and popular data have been collected as a result of this exploratory activity described in the manuscript: N. Ossadcha-Janata, "Wild medicinal plants in the Ukraine used by the official and by folk medicine." Monograph V.I., 1939, p. 498 (in Ukrainian).

Upon returning from an expedition the herbarium material (each field trip yielded about three thousand sheets) was sorted and determined. The most interesting specimens were used for animal experiments and for tests in chemical and pharmacological laboratories. Those specimens which proved

their effectiveness on animals were passed on for further study to medical and veterinary clinics.

In addition to technical difficulties (absence of our own means of transportation, for example), we were faced with another considerable difficulty, namely the fact that in the Soviet Union the so-called "village quacks," that is, the persons who applied methods and treatments of folk medicine, were punished by imprisonment and, therefore, were afraid to tell what they were doing. To cite just one example: we met a woman in the Odessa region who was one hundred two years old and who treated nervous afflictions and other diseases by hypnosis and herbs. However, all she would tell us was that she cured her patients with the help of "God's word." Sick people came to see her or were brought to her from places as far as Kharkov, Odessa, and Kiev. A few years earlier, she had been ordered to discontinue her treatments, since she had no medical training, and was even arrested. Thanks to the intervention of a local high official whom she had cured, she was released and even allowed unofficially to continue her treatments. However, afraid of being jailed again, she mentioned only a few of the herbs she was using.

The data on the use of herbs in folk medicine which we gathered during our field trips have a rather empirical character. In questioning the population, we were satisfied with a general approximate description of the diseases by the person who gave the treatment (without our examining the patient) and used a particular herb on the basis of his own symptomatic diagnosis of the disease. Therefore, the data represent only the raw materials on which to base the further study of new kinds of medicinal plants.

RAMIE **(from page 18)**

Ramie grows to a height of five to eight feet with stems one-half to five-eighths of an inch in diameter and large ovate leaves three to five inches broad. Pistillate flowers are borne in small axillary panicles on the upper portion of the main axis with staminate flowers below. As might be expected from this arrangement, there is much cross-pollination, and the seedlings show great variability. Varieties selected for high yield and fineness of fiber must be propagated from vegetative cuttings and properly maintained to prevent seedling contamination.

The culture of ramie for fiber in China, Malaya, and India is limited to handicraft methods of production. The stalks are cut, defoliated, and stripped by hand. The strips or ribbons of bast are then scraped by primitive hand implements until clean. The scraped fiber may be exported as China grass or may be woven into a coarse fabric for general use. High-quality fabrics are made by boiling the scraped fiber in wood ashes.

The culture of ramie in Japan, the Philippines, and European colonies of the Far East is partially mechanized. The stalks are cut and decorticated green with small hand-fed, raspador-type machines.

The decorticated fiber is dried and degummed at the spinning mill, then woven into different types of textiles for domestic and export trade. The fiber is generally made up for linen-type specialty fabrics.

The culture of ramie in Florida is highly mechanized on an assembly-line basis. The fields are defoliated by means of chemicals applied by airplane. The stems are cut and bound like sheaves of grain and hauled to a central decorticating plant. The fiber is removed by passing through a large raspador-type decorticating machine similar to those used for sisal and abaca. The fiber is washed, pressed by large squeeze rolls, and then dried in large continuous-line drying ovens. Chemical degumming and other processing of the fiber is now being done as a separate operation according to the requirements of a particular product, before selling the fiber to the spinners.

The production of ramie has passed through a phase of mechanization that is characteristic of the industrialization of agriculture. The plant, which comes to us as a legacy of "Old China" from the "Farmers of Forty Centuries," is being studied for improvement of those characteristics which will be most advantageous under our present system of cultivation and for qualities of the fiber which have the highest demand in the market.

PLANTS AS FOOD **(from page 17)**

ple skinned with segments of purple flesh inside; bell or custard apples, small and apricot-colored; mummy-apples or papaya.

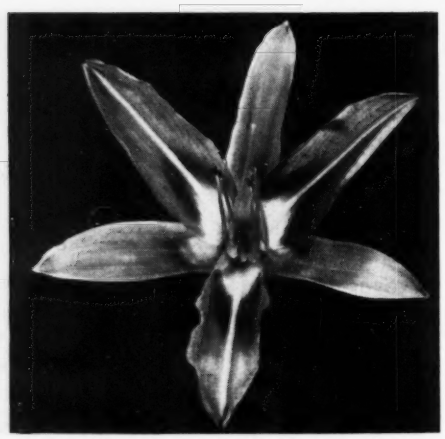
A native approached me; he opened a durian *(Durio zibethinus)* under my nose. I screamed and covered my face. That brought a great laugh from everyone, even the dignified Buli. The odor of the fruit is hideous, indescribably putrid. However, if the smell is notoriously like devil's food, the eating is like angel's food, a delicate flavor — but almost too rich for my taste after such a bountiful meal.

The "pièce de résistance" of the meal, from the native's point of view, came to me on a broad green leaf — a Puka Puka oyster. To my eyes it was a mass of white entrails! With great effort, I downed it like a lady. There was a slight stir in the crowd — with horror I envisioned little boys running about to look for more Puka Puka oysters. I rose quickly to my feet, bowed, and clapped my hands together as I declared in farewell, "Vaka vina-vinaka — sa moce" (thank you greatly, goodbye).

The enemies of the food and plant life in the islands are fruit-eating flying fox; rats which live on coconuts; vicious blue and white-striped tree crabs. But most dangerous of all are the life-destroying hurricanes, that in minutes can lay waste entire islands.

Fruits blown to the ground by the force of nature are utilized after a gorging celebration. The remaining fruits and vegetables are thrown into a broad, shallow pit; fermentation sets in; and this daily food substitute, called "Poi," keeps them nourished for nine months, until the new planting is food-bearing.

It is said he who loves most, has most. It can be said of our dark-skinned brothers in the Far East that they are free from envy, resentment, and jealous ambition, living, as they do, in tranquility on sandy shores close to the unresting ocean, where the foam of an overturning tide is shut off by the blue lagoon; where great peaks and black crags stand out in grandeur against the distant blue — protectors guarding the green vales, streams, and sand-fringed forests that come straggling down to meet the tumbling waves.



FOUR NEW DAYLILY CLONES

By **A. B. Stout**

A plant of the clone *(upper left)*, to which the name "Poinsettia" is given, is dormant and hardy in winter in the northern states. The erect scapes are three feet tall and profusely branched with a total of as many as forty flowers to a scape. The flowers are medium-full as shown in the photograph (which is about four-fifths of the actual size) with a spread of about five inches. The general color effect is a brilliant scarlet-red. In the petals there is a mid-zone of carmine and a stripe of golden-yellow that extends from the throat. The season of bloom at New York is from late July to middle August.

A distinctive feature of the flowers of the clone *(upper right)* to be known as the "New Yorker" daylily, is the folded and reflexed character of the broad petals in sharp contrast to the smoothly recurved sepals. The flowers have a bicolored pattern of coloring. The large throat is golden, and this color extends as a mid-stripe into the petals, the blades of which are otherwise a rich russet or sienna that is somewhat darker in the mid-zone. The sepals are golden with a sprinkling of faint sienna. The erect scapes reach a height of forty inches and may have as many as twenty flowers to a scape. The earliest date of bloom at New York has been July 1st, latest August 19th. Foliage is evergreen.

The foliage of the "Allan-a-Dale" daylily *(above)* is dormant in winter. The scapes rise to a height of four feet and are well branched. The flowers are of medium size; the petals are broad and overlapping, forming a cup-shaped flower. The golden color of the throat extends into the petals, but otherwise the coloring is a dark rose that is near carmine or ox-blood red.

At New York, the foliage of the "Dusty Miller" daylily *(left)* has been evergreen but not lush and hence the plants of this clone are reasonably hardy. The scapes are three feet tall. As shown in the accompanying illustration, the flower has broad petals and is of medium size. The delicate blending of colors in the flowers gives pastel effects that are difficult to describe. The pale golden-yellow of the throat extends into sepals and petals. Over most of the face of the sepals and in a broad band about the margin of the petals, there is a sprinkling of pale ochre and a faint tinge of rose. The climax of bloom has been in late July.

For the Younger Generation of Gardeners

SCHOOL GARDENING IN NEW YORK CITY

By **Romaine F. Button**

PERHAPS you and your parents would like to know about school gardening here in New York City. As you can imagine, gardening in a city school is quite a bit different from gardening in the country. It presents a lot of problems that gardeners, whether young or older, do not ordinarily face in the country. Do you know that nearly three hundred of the schools in this big city — one of the very biggest, busiest cities in the whole world — have areas fenced off and used as gardens? Around one hundred seventy-five of these gardens are maintained in an actively cultivated state throughout the year.

The gardens are supervised by a teacher in the school during the school year and by a special teacher in the summer. This point probably won't mean much to you, but your parents may be interested to learn that regular teachers carry on the gardening program as part of their daily procedures, while summer teachers are paid by the hour through a special appropriation of the Board of Education.

Children of all classes participate. They do all the work under the direction of the teacher. In some cases, the custodian of the school has a love of growing green things and enjoys taking an active part in the program.

The tools and seeds are provided by the Board of Education. Boys and girls working in the school gardens use such tools as rakes, hoes, spading forks, spades, weeders, trowels and watering cans. There is an assortment of seeds for them to sow, but zinnias, marigolds, nasturtiums, calendulas, bachelor's buttons, and cosmos are the most popular flowers. Vegetables include beans, carrots, beets, Swiss chard, New Zealand spinach, Spanish peanuts, kale, lettuce and sweet corn. That's really quite a wide variety, isn't it? Do you grow all those kinds in your suburban garden?

Programing school garden work in the spring term is something of a problem, for it is not always practical for the pupils to go to the school garden to dig and plant when soil and weather conditions are right. So it is more often late than not that the garden gets planted.

Then just about the time that the garden begins to look pretty good, school lets out for summer vacation. The pupils who worked in the garden during the spring term — or the most active, interested boys and girls — form into a summer garden club and carry on the program. They may harvest and take home any produce raised. The number of pounds of vegetables harvested is really quite impressive.

Work in the garden is planned for definite hours and days when the teacher will be there to supervise. Attendance is good — and if a boy or girl goes to camp for a few weeks, there is usually a willing substitute waiting to take his or her place.

Small parties are held frequently by the students — and a large party, with parents included, is often given at the close of the summer program. The faithful young gardeners, who kept on the job all spring and summer, are awarded certificates. A gold medal is presented to the best gardener, and a silver medal consoles the runner-up.

Two members of the School Garden Club of Public School 98, Queens, diligently tend their plants.

Sometimes, the medals and certificates are held until school opens, and the presentations are made in special exercises during assembly periods.

Vandalism has, unfortunately, proved to be quite a problem. Do you know what vandalism means? It is willful destruction of property — and it is a pity, isn't it, that grown-ups as well as young people do not respect and treat well the things that belong to other people. However, the school authorities find that when vandalism is reduced in the school garden, there is also a sharp decline in all types of damage to the school property and nearby areas.

Would you believe it — more than thirty thousand boys and girls participated in the school gardens in New York City in 1952, and six thousand six hundred twelve pounds of produce were taken home? And the pleasure and satisfaction of growing flowers and vegetables — one of the most important things of the whole school program — can't be measured. School gardening in New York City is a really worthwhile activity, don't you agree?

PHELPS EXPEDITION **(from page 2)**

rito and Manapiare are controlled by savanna lands. Those at the lowest elevations are subject to periodic inundation and, as a consequence, are underlain by a sandy-silt soil and are dominated by grasses, sedges, and marsh herbs. On higher elevations, the mature savannas are characterized by the ubiquitous *Couretella americana* and *Bulbostylis paradoxa,* growing on well-developed, sandy-laterite soil often largely covered by a litter of iron-laterite pebbles. Wooded galleries of varying breadth for the most part cut off view of the savannas from the rivers.

Cerro Guanay was approached from the Cano Negro across a narrow river gallery and some five kilometers of marsh lands, which rise along the base of the mountain into well-matured, upland savanna. Unfortunately, the south slopes of Guanay had been fired in recent years, perhaps repeatedly, resulting in the succession of second growth woodland.

The summit of the mountain, at least

Styrax guanayana, **one of the more attractive shrubs of the summit of Cerro Guanay**

that small southeastern portion that we visited, likewise had been devastated by fire. Along the escarpment such fire followers as *Vellozia alexandrinae* and *Macairea* spp. were very conspicuous, but were absent interiorily where the vegetation seemed to have been relatively unaltered as to composition, but where it was all too evidently unrecovered from the destruction of fire.

The summit terrain, rugged and dissected, provided a variety of habitats: exposed ridges, boulder-strewn slopes, dark wet ravines, and open basins. Conspicuous features of the varied scrub-savanna summit vegetation were extensive low *Bonnetia* forests, yet unrecovered from the fire, and the fine *Clusia radiata, Calea esposi,* and *Styrax guanayana* to be described below.

Cerro Camani, from the mouth of Cano Raya on the Guaviarito, was approached through a continuously forested region for a distance of some fifteen-twenty kilometers. The mountain itself is not unlike a huge shoe in outline, with the toe pointing northward. The "toe" and "instep" are well forested and apparently only the smaller dome-like "ankle" is more or less ringed with bold escarpments.

There was no evidence of previous fire on Camani, so it may be assumed that its vegetation has been undisturbed from that cause. The upper slopes were covered by a dense mixed montane rain forest in which *Euterpa monte-duidae, Gleasonia montana,* and an undescribed tree composite, *Gongylolepsis,* were most conspicuous. The dome, forested in the depressions and canos, is otherwise covered by a scrub vegetation of which *Sauvagesia erioclada* and *Calea camani,* both herein described as new, are dominant.

The summit vegetation of the Cerros Guanay and Camani, of course, belong to that ancient and restricted cumbre flora of the sandstone tepuis of the Guayana Highland. More closely is it interrelated with cumbre floras of the plateau-mountains of Territorio Amazonas, as indicated by the general distribution within it of such species as *Euterpa monte-duidae, Gleasonia montana,* and *Gongylolepsis* sp. in the Amazonas region. Even more restricted affinities between Guanay, Camani, Sipapo, and Yavi, all closely geographically associated, are suggested by the limited distribution among them of closely interrelated species of *Calea* and *Clusia.* There is little doubt but that the immense Serrania Yutaje (Corocoro) occupying the extensive area between Guanay and Yavi, would participate in this regionally contained floristic relationship. Yutaje, readily accessible from San Juan de Manapiare, will undoubtedly some day yield the richest and most instructive collections to be gained from the area.

The plants fully described in the report are: *Sauvagesia erioclada* Maguire and Phelps which, although frequent on the cumbre of Cerro Camani, has not been observed elsewhere in neighboring mountains — its closest relative is an undescribed species from Cerro Yapacana; *Clusia radiata* Maguire and Phelps, which is not known to have immediate relatives; *Styrax guanayana,* which is one of the more attractive shrubs of the summit of Cerro Guanay, where it is wholly endemic—it does not seem to be closely related to the few other species of *Styrax* that occur in the Guayana Highland, but rather to find its nearest cogener in *S. Martii* of southern Brazil; *Calea camani* Maguire and Phelps and *Calea esposi* K. D. Phelps. The last, a beautiful shrub, is named for William H. Phelps, Jr., by Kathleen D. Phelps, who has been constant companion and fellow student with her husband on all of their many expeditions to the tepuis and table lands of the Gran Sabana and Amazonas.

BOOK REVIEWS

SUMMER AND AUTUMN FLOWERS. Constance Spry. 116 pages, illustrated with 24 hand-colored photographs and 12 monochrome plates; indexed. Thomas Y. Crowell Co., New York. 1952. $5.

Come a winter's evening with a blazing fire and Constance Spry's glorified bulb-seed-catalog book, SUMMER AND AUTUMN FLOWERS, any flower-minded American will enjoy the lyrical descriptions of the plants grown in the author's English garden.

As she herself states, much of the book has been offered in her earlier writings. But Mrs. Spry feels that since this is a companion volume to one about to be released, titled WINTER AND SPRING FLOWERS, she owes her readers complete data at the risk of redundance.

Mrs. Spry gives detailed information on the plant and seed specialties of most of the commercial growers in her country, quoting their glowing promotional verbiage concerning their products, then goes on to describe at length the actual progress and results she has achieved with these bulbs or seeds or cuttings in her own garden, greenhouse, or glassed porch. She finds, in most instances, that she concurs wholeheartedly with the colorful claims made by the seedsmen.

The American flower arranger, who collects for her library books pertaining to this subject, will undoubtedly include SUMMER AND AUTUMN FLOWERS, not only because of its English point of view but largely because it will stimulate conversation in garden club circles in this country. Whether Mrs. Spry's color plates of arrangements will appeal to sophisticated flower show judges here is a moot question, but certainly the text displays her years of experience and knowledge in selecting the right environment for the culture of the flower seeds and bulbs she buys, as well as it shows her delight in growing beautiful and unusual plant materials for her arrangements.

BETTY B. MERRIAM
Mountain Lakes, N. J.

Editor's Note: WINTER AND SPRING FLOWERS has been published since the above review was prepared. Written in similar vein to SUMMER AND AUTUMN FLOWERS, it comprises thirteen chapters and reproductions of thirty-six flower arrangements — twenty-four in full color, twelve in monochrome.

THE COMPLETE BOOK OF DRIED ARRANGEMENTS. Raye Miller Underwood. 193 pages, pages, illustrated, indexed. M. Barrows, New York. 1952. $4.95.

Seldom has a work on artistic arrangements dealt more exhaustively with the subject than has Mrs. Underwood's book. The author has lavished on the reader a wealth of information concerning the materials available for such arrangements, its conditioning, preserving, and storing. While some of the material described is not readily obtainable in northern areas, the list of usable items is, nevertheless, sufficiently comprehensive to satisfy all normal requirements anywhere.

Design, so vital in arrangements, is clearly explained. The fundamentals, such as balance, harmony, scale, and distinction, are defined in precise terms.

The concept of dried arrangements carries with it the connotation of browns and tans. In the chapter on color, the reader is thoroughly disabused of any such fallacy. The author's observations on color harmony and on drying to preserve color are most enlightening.

The chapter on pressed flowers, seeds, etc., represents a welcome addition to the scant bibliography on the making of plaques and panels.

There is much merit to the chapter on "Treasures from the Wild," descriptive of how nature, out of its bounty, graciously proffers lasting beauty to all.

A more elaborate treatment of mechanics might, perhaps, have been helpful to the novice, since, as the author observes, there is a fear of working with dried material.

This beautifully illustrated book qualifies as a distinct contribution to an art in which all too few are adept. It should have an especial allure for those who, hitherto, have been too shy to try and should convert many a dissident.

MARGUERITE MULLIGAN
Elizabeth, N. J.

ARRANGING FLOWERS FROM THE ROADSIDE, FIELDS AND WOODS. Amelia Leavitt Hill. 151 pages, illustrated. Studio-Crowell, New York. 1952. $3.85.

If, after working with flower arrangements all day, I can pick up a book on the subject and read far into the night, that book must be good. So is ARRANGING FLOWERS FROM THE ROADSIDE, FIELDS AND WOODS, by Amelia Leavitt Hill. The author has followed the principles of design, color, and balance throughout the book as used in the art of flower arrangements. She has brought to her reader the beauty of our native wildlings and how they can be used to best advantage in flower arrangements for the home and for the flower show.

This book should appeal to the reader not only in one section of the country, but all over the United States, for included in the text and illustrations are suggestions for arrangements of all types of wild flowers. In the back of this book are suggestions as to how to grow many of these varieties in your own garden; also those which keep best as cut flowers; and those which do not readily adapt themselves to conditioning. ARRANGING FLOWERS FROM THE ROADSIDE, FIELD AND WOODS should be in the library of every flower arranger and lover of nature.

RUTH EMERSON KISTNER
Glendale, N. Y.

MAKING CORSAGES AT HOME. Dorothy Biddle and Dorothea Blom. 64 pages, illustrated; drawings by Georgina Falk; indexed. M. Barrows, New York. 1952. $2.50.

There has been a popular trend lately toward the making of corsages at home. The recently published book, MAKING CORSAGES AT HOME, is not only timely, but a very practical treatise on the subject.

The styles of corsages are many and are designed for all occasions. Dorothy Biddle and Dorothea Blom give detailed instructions, and the book is beautifully illustrated with photographs, as well as excellent drawings, showing the steps in wiring and tying of the flowers and foliage.

The large list of plant material affords a choice of flowers and foliage for all occasions.

I highly recommend this instructive book.

CLAIRE STICKLES
Malba, L. I.

THE GARDENER'S COOKBOOK. Jean Krofsky. 150 pages, illustrated by Fritz Kredel; indexed. Sponsored by Eastern States Farmers' Exchange. Thomas Y. Crowell, New York. 1952. $2.50.

To the housewife who has always "lived out of cans" or to the beginning cook, this book will seem a revelation of novelties; but to the gourmet or the experienced, it will be a constant frustration! The section devoted to each vegetable usually seems to end too soon, having entirely ignored such classics as asparagus vinigrette, broccoli divan, or succotash — for call a combination of corn, lima beans, and peas succotash I will not! However, if you over-gauged your garden and have that "Dear Heaven, not *more* tomatoes — or corn or beans or brussels sprouts" feeling, this book will help avert monotony until the next problem crop comes along.

A chapter is devoted to each of the many vegetables, from artichokes to zuchini, and to my mind the best part of the book is the two or three paragraphs at the beginning of each chapter which tells how to prepare and cook basically the vegetable under discussion. A few eating suggestions are also given in connection with such bafflers as artichokes and cauliflower florets.

At the end of the volume is a very comprehensive and thoughtful summation of the popular culinary herbs along with general suggestions for their use, alone and in combination, and advice on drying. To many cooks who want to experiment with them, the suggestions on what herbs to use in what dish will be worth the price of admission alone. There are also brief chapters on "Sauces and Dressings," a list of the vegetables having each of the vitamins, and suggestions for laying out a "Model Family Garden." A "Pest Control Chart" applies to diseased vegetables in the garden rather than uninvited guests in the parlor, as I had at first hoped!

One of the most intriguing recipes is frosted tomatoes, which calls for chopping finely two small onions and eight large tomatoes together in a wooden bowl, adding salt and pepper. This combination is then put into the freezing tray of the refrigerator and chilled till ice crystals start to form. Meanwhile six tablespoons of mayonnaise, two tablespoons of chopped parsley, and one teaspoon of curry powder (I would have used the same amount of basil, but after all, it is *her* book) are combined. The frosted tomato mixture is put into chilled soup cups and topped with the mayonnaise combination and served on a very hot day. Sounds good and a change from "Gespacho."

It was pleasant to find a mention of celeriac, a far too often ignored treasure, and several simple suggested uses. Salsify, or oyster plant, was also briefly noted — another vegetable that will give you a reputation as a gourmet if served occasionally.

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There are eleven perfectly charming illustrations by Fritz Kredel, which make me long for the originals to decorate cupboard boards and kitchen walls.

ISABELLA GAYLORD
Utica, N. Y.

BETTER HEALTH WITH CULINARY HERBS. Ben Charles Harris. 182 pages. Christopher Publishing House, Boston, Mass. 1952. $3.

Ben Charles Harris is a registered pharmacist, former Curator of Economic Botany at the Natural History Museum of Worcester, Mass., and has acted as a radio commentator on nature and health programs from Worcester stations. He considers herbs or culinary seasoning plants to be preventive medicines which should be included in the basic diet to maintain good health. Mr. Harris is at his best when he is describing the individual plants, advising on their culture, revealing their presence in familiar trade name medicines, and tracing their usage in ancient treatises on human ills.

To bring the reader more up to date on the verification of the herbalists' claims for certain remedies, the author quotes present-day pharmaceutical scientists, such as Professor Heber W. Youngken. When he coins words like "oregenol," referring to seasoning with oregano, which he confuses in nomenclature, and states that we should "Use honey as your only sweetening," I can't go along with him. However, the book is readable, takes a new point of view of the usefulness of herbs, and is sprinkled with interesting facts and intriguing recipes, some of them medicinal.

To the collector of books on the subject it represents a valuable addition particularly for reference. Here lack of an index is a real handicap.

GERTRUDE B. FOSTER, *Editor*
The Herb Grower Magazine

WILD FLOWERS FOR YOUR GARDEN. Helen S. Hull. 280 pages, illustrated (drawings by Alexander Seidel); photography by Roche; indexed. M. Barrows, New York. 1952. $4.95.

Helen S. Hull's charming book describes in idyllic and often lyrical fashion the varying habitats of wild flowers. The descriptions give one a feeling of fairyland and unreality. The scientific and sentimental blend somewhat confusingly and the same confusion exists in the listing of common and botanical names indiscriminately. A few more Latin names to identify species correctly would have been an improvement. This is not a book for the scientist or advanced native plant horticulturist. However, the section on propagation is most informative and should do much to encourage growing natives (which to me has always seemed a real horticultural challenge).

Much is left untold in the way of difficulties surmounted and nothing is given of trial and error, but it is delightful and joyous reading. Mrs. Hull must have made a few mistakes in developing her garden from which others might profit!

While true, a wild flower garden needs no spraying, cultivating, or fertilizing, there is a good bit of maintenance. Those encouraged birds bring blackberry, pokeweed, and barberry seedlings. The trees scatter hundreds of additional seedlings. There is a great deal of work — which I love, but care not to have minimized. I still maintain a garden of wild flowers takes time, thought, muscle, and unbounding energy to go hand in hand with scientific curiosity and a love of beauty.

A most interesting feature is the section of brief descriptions of outstanding wild flower gardens — one from each state.

Above all else, this is a beautiful book, beautifully illustrated and designed, and one that would always be a cherished possession.

ESTHER M. P. BURT
Park Ridge, N. J.

AN INTRODUCTION TO WILD FLOWERS. John Kieran. 77 pages, illustrated by Tabea Hofmann; indexed. Hanover House (Doubleday), Garden City, N. Y. 1952. $2.50.

Two experts have pooled their talents to produce an inviting book on wild flowers. John Kieran did not try to write about all the wild flowers, but chose only the most common in the blooming sequence of plants throughout the season. Tabea Hofmann charmingly illustrates these plants, enhancing her reputation as one of America's foremost wild flower illustrators. The combination of her skilled brush and John Kieran's informal and understandable writing should intrigue even the reader with only casual interest in wild flowers inevitably seen along country road, brook, or city lot.

Reading through the book is like watching the season open with skunk cabbage, colt's foot, and dandelion, and close with the golden-rod, aster, and gentian. Derivations of common and Latin names, folklore and history of the plants, and ecological facts are skillfully blended in a manner seldom done in identification manuals. The result is a different wild flower book.

After examining the fine illustrations and handsome format, the reader will be surprised to find a price tag of only $2.50 for this book, a near miracle in an age of soaring costs. The publisher deserves credit for giving the reading public a beautiful book at such a bargain price.

STEPHEN COLLINS
Botany Department
Rutgers University

FERNS OF GEORGIA. Rogers McVaugh and Joseph H. Pyron. 195 pages, illustrated, indexed. Sponsored by the Garden Club of Georgia, Inc. University of Georgia Press, Athens. 1951. $5.

This book is unique in several ways. It is probably the first work on a relatively little-known group of native plants sponsored by a garden club; not only by that of the State, but by over two hundred member clubs, to say nothing of six commercial firms and several individuals. (One might hope that with this much support it could have been

distributed for a nominal sum, but no, the price is $5.00.)

For those who wish to gain a knowledge of the botanical relationships and the methods used by botanists in studying and identifying such plants, some thirty pages are devoted to an excellent preface and introduction. Then two pages are allotted to each of the true ferns, horsetails, clubmosses, etc., known to grow in Georgia. On one, there is a detailed discussion of the history, features, habitat, and range; on the other, a drawing of a plant or, in the cases of larger species, a frond, with an enlarged view showing details of the reproductive structures. With the illustration there is also a map of the State, showing by dots in just which counties the plant has been observed — some growing in but a single county, others in nearly all of them. Since most amateurs prefer to identify unknown plants by comparison with pictures, it is a pleasure to note that the drawings in this book, mostly made by the junior author, are both technically accurate and natural in appearance; in fact, the best published in any popular book on ferns thus far.

EDGAR T. WHERRY
Dept. of Botany
University of Pennsylvania

FERNS OF MICHIGAN. Cecil Billington. 240 pages, illustrated, indexed. Cranbrook Institute of Science, Bloomfield Hills, Mich. Bulletin No. 32. 1952. $5.

Cecil Billington's FERNS OF MICHIGAN, published two years after the author's death, is a worthy companion volume to his SHRUBS OF MICHIGAN (Cranbrook Institute of Science Bulletin No. 20). The volume contains excellent descriptions of all the pteridophytes known to occur in Michigan, numbering one hundred forty-five separate entities distributed among eighty species and twenty-three genera. The nomenclature is conservative, following that of the eighth edition (1950) of Gray's MANUAL OF BOTANY. The manuscript was realigned to conform with this nomenclature, after Mr. Billington's death, by Dr. Stanley A. Cain, and the many scholarly contributions of Dr. Cain to the work are apparent.

Of particular value to the user of such a work will be the excellent keys to genera and species, the county distribution maps given with each entity, and the discussions of habitats and distributions. The maps graphically call attention to the limited occurrence, within the state, of certain species, thus indicating distributional problems which can profitably be examined by local students. The excellent line drawings, by several artists, are of great assistance in identification, and the book is further enhanced by a series of fine photographs showing habits and soral details.

The introductory material is comprehensive and entirely readable, giving a picture of the natural position of the pteridophytes, their life cycle, utilization, folk lore, and many other aspects. The few sentences dealing with evolution might better have been omitted, as they are perhaps misleading; at any rate one may question the remark that "... the seed plants have retained in many instances the leaf form of the ferns from which they evolved." A "pictorial glossary" will be very useful to non-technical readers, but the inadvertent misspelling of cordate as "chordate" is unfortunate.

The Cranbrook Institute of Science is to be congratulated on its sponsorship and publication of this useful and attractive volume, which adds another to the list of excellent local fern floras now available.

A. C. SMITH
U. S. National Museum
Smithsonian Institution

THE NEW BRITTON AND BROWN ILLUSTRATED FLORA *of the* NORTHEASTERN UNITED STATES AND ADJACENT CANADA

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THE NEW YORK BOTANICAL GARDEN
Bronx Park New York 58, N. Y.

SUBTROPICAL GARDENING IN FLORIDA. Nixon Smiley. 182 pages, illustrated with photographs. Farrar, Straus & Young, Inc., New York. 1951. $3.

This book comes as a timely and much desired publication on subtropical practices of horticulture in the State of Florida. Each one of the chapters has been very carefully reviewed by men who are well versed both theoretically and in the practical experience of subtropical gardening. It is very clearly written so that all who read it can fully understand the methods as explained and can proceed with any gardening project that they may wish to carry out in Florida. To the men and women from the North, who are horticulturally inclined, either as amateur or professional gardeners, and are desirous of settling and working in Florida, this book will be of very great assistance.

All phases and methods of how and when to propagate, plant, and grow herbaceous plants, vines, foliage or flowering shrubs, trees — fruit-bearing, shade, or for landscape designs — are carefully treated in their respective chapters. Also the growing of vegetables which is an intriguing part of horticulture, owing to the fact that the great majority of vegetables are produced during the winter and early spring months of the year, is adequately covered.

The chapters on insect control and eradication are concise and complete in every way as are the chapters on soils and fungus diseases of plants. The uses of chemical fertilizers in the feeding of plants and of lawns are scientifically explained as to the proper amount and time of application.

The chapter on when and how to prune is also very carefully and clearly explained so as to be readily understood by all who have to perform this important work.

Frost protection of plant material is a *must* in the subtropical South, and this is fully explained as to the time to perform the job. Last but not least, the chapter on orchids, which is one branch of horticulture that is taking hold of the public in a big way, is written in a concise and understandable manner.

Nixon Smiley's book is worthy of a place on any horticultural bookshelf.

JOHN S. DOIG
Miami, Florida

THE COMPLETE BOOK OF AFRICAN VIOLETS. Helen Van Pelt Wilson. 247 pages, illustrated, indexed. M. Barrows, New York. 1951. $2.95.

This is the second book written by Helen Van Pelt Wilson about her favorite house plant. The first book, published four years ago, was called THE AFRICAN VIOLET.

THE COMPLETE BOOK OF AFRICAN VIOLETS provides the veteran collector of this fascinating house plant, as well as the amateur just starting to be a fan, with eleven chapters of useful information, including how to make African violets bloom, propagation by leaves and divisions, stages of growth from seed to flower, pests and diseases, greenhouse culture, fluorescent lighting, showing and judging.

The last chapter is called "Infinite Variety," in which Leonie Hagerty's lovely line drawings of different varieties are shown as well as the listing of over six hundred and fifty varieties.

There are color photographs of twenty-nine different varieties of saintpaulias, including the frontispiece which shows an African violet window garden.

The book is written with clarity and humor and tells how to get real enjoyment out of every phase of African violet culture.

GLADYS COUSER
Berkeley Heights, N. J.

PRINCIPLES OF WEED CONTROL. Gilbert H. Ahlgren, Glen C. Klingman, Dale E. Wolf. 368 pages, illustrated, indexed. John Wiley & Sons, New York. 1951. $5.50.

This is the first new text on weed control since the discovery of the selective, translocated herbicide 2,4-D. The text is well illustrated and is divided into seventeen chapters and an appendix. Literature refer-

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by G. L. WITTROCK,

Assistant Curator of Education of The New York Botanical Garden

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ence is given at the end of each chapter and includes many articles of historical value on 2,4-D, which were published with very little experimental data.

The first two chapters discuss the importance of weeds, classification of weeds, and general control methods. Chapter 3 is an excellent discussion of chemical characteristics of various herbicides. Chapter 4, "Physical Effects of the Herbicides," could have been combined with Chapter 3.

Eight chapters are devoted to weed control in special areas. They are: field crops grown in rows, small grains and flax, grasslands and rights-of-way, drilled and broadcast legumes, vegetables and fruits, drainage and irrigation ditches, streambanks, lakes, and ponds, turf, lawns, and ornamental plants, brush and undesirable trees. In these chapters cultivation and the desirability of planting clean seed have not been neglected.

Chapter 13 is a good discussion of soil sterilants. The next three chapters—"Defoliation," "Poisonous Weeds," and "Special Weed Problems"—could have been discussed in considerably more detail.

The last chapter is a very good discussion on application equipment.

In the appendix there is a table giving the relative susceptibility of plant species to 2,4-D. Annuals, biennials, perennials and woody plants have been combined, making it much more usable than the usual susceptibility table.

The book has relatively few errors and is very usable, but will need frequent revisions if it is to keep up with the science of weed control.

DR. S. M. RALEIGH
Pennsylvania State College

SPRAYING, DUSTING AND FUMIGATING OF PLANTS. Walter S. Hough and Freeman Mason. 726 pages, illustrated, indexed. Macmillan, New York. 1951. $12.50.

An expanded and truly up-to-date revision of Dr. Mason's SPRAYING, DUSTING AND FUMIGATING OF PLANTS. All the newer insecticides, fungicides, herbicides, and seed-treating practices are very ably handled. The keys for diagnosing the principal troubles of fruit trees, of bush, vine and citrus fruits, and of vegetable and truck crops should be extremely helpful to every gardener and orchardist.

P. P. PIRONE

AN INTRODUCTION TO THE ANATOMY OF SEED PLANTS. Ernest L. Stover. 274 pages, illustrated, indexed. D. C. Heath & Co., Boston, Mass. 1951. $4.

This attractively printed book is illustrated by numerous and good photomicrographs. Considerable space is devoted to subjects often omitted in anatomy courses, for example, vegetative propagation, gross anatomy of stems, formation and number of stomates, root systems, and number and distribution of root hairs.

This attractiveness is outweighed by less desirable features. The brief survey of the plant kingdom, written in the most elementary terms, utilizes the four-phylum classification that is being abandoned even in introductory textbooks.

In an apparent effort to simplify, the author is frequently difficult to follow or misleading. Examples are the very confused treatment of procambium formation (p. 166) and statements such as the "*opening* (italics mine) of the end walls of longitudinal row of cells" to form vessels. In a book advertised as presenting the "New Approach"—"developmental"—it would seem desirable to describe accurately the dissolution of the end walls of vessel elements, particularly when it could be presented just as briefly and certainly more understandably.

Examples of the numerous serious errors in the text are the definition of a seed (p. 1) and in the treatment of the submicroscopic structure of the cell wall, the primary phloem, and the manner of formation of the secondary wall in primary xylem, all found easily by reading pages 62-73.

In the opinion of this reviewer, the high proportion of errors, the misleading statements, and the confusing treatment of many important anatomical concepts will make the text a difficult one to use, unless great care is exercised by the teacher.

HARLAN P. BANKS
Dept. of Botany
Cornell University

OUR AMERICAN ORANGE. Mae M. Vander Boom. 64 pages, illustrations by Doris Reynolds. Didier, New York. 1951. $2.75.

In spite of the fact that the United States produces more than half the oranges grown in the world today and that millions of its citizens start their day with a glass of orange juice, very few know very much about this fruit. Mrs. Vander Boom remedies this state of affairs—and does a very good job—in the new book, OUR AMERICAN ORANGE. While written for young people, adults will also find this story of the history, modern cultivation and development of the orange industry fascinating and informative. The drawings by the well-known illustrator of juvenile books, Doris Reynolds, are charming.

THE LEMON FRUIT. Elbert T. Bartholomew and Walton B. Sinclair. 163 pages, illustrated, indexed. University of California Press, Berkeley. 1951. $4.50.

The book is divided into three main chapters. Chapter 1, "General Information," is a consideration of the origin and world production. The maturity of lemons is described in relation to legal standards, harvesting, and storage. There are sections concerning the structure, proportions of peel to pulp, and chemical changes occurring during growth.

In Chapter 2, "Composition and Physiology" is completely covered beginning with specific gravity and other characteristics of lemon juice as affected by condition of fruit. Essential oil, lipids, hesperidin, the bitter principles (limonin and nomilin) and moisture are also discussed.

A section is concerned with storage effect on juice quantity and juice constituents. Data on this subject has not been available in the past.

The respiration of the fruit is given complete and detailed consideration in relation to temperatures, length of storage, and fungus diseases such as green mold.

The composition of lemons is considered in detail under the sub-headings sugar, pH, organic acids and buffer properties, polysaccharids, pentosans, pectin, cellulose and hemicellose, proteins, glutathione, enzymes, and vitamins. A table records the ascorbic acid content of juice from lemons stored for different periods.

Products and their uses are considered in the final chapter, such as stock feed, pectate pulp, pectic acid and vitamin C, essential oil, candied peel, vitamin P, enzymes and galacturonic acid, various preparations of lemon juice, citric acid, and oil from the seeds.

There are summaries of many publications on lemon fruit and original data from the authors' years of research.

LEON D. BATCHELOR
Citrus Experiment Station
Riverside, Calif.

PRINCIPLES OF PLANT PHYSIOLOGY. James Bonner and Arthur W. Galston. 499 pages, illustrations by Evan L. Gillespie; indexed. W. H. Freeman, San Francisco, Calif. 1952. $5.50.

The authors have prepared this book for use by students in the various fields of plant sciences as well as in the field of plant physiology itself. In writing the text they have assumed some background on the part of the reader in basic science, such as chemistry and general botany. Thus they have omitted certain details discussed in other text books on plant physiology in favor of facts and concepts central to the understanding of a functioning plant. Also, in view of modern biochemistry, the authors have found it possible to make a more complete presentation of certain aspects of plant physiology than was possible a few years ago.

(Continued on page 32)

WE HAVE SO MANY *Lovely* NEW THINGS AT WAYSIDE THIS YEAR

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PRIMROSE. Another Wayside exclusive, only lilac of its color in existence. In Europe, this rare and delightful new variety is referred to as the *"Yellow Lilac"*. Hardy plants produce an abundance of soft, cream-yellow flowers. Charming with blue and lavender shades. Sturdy 24 inch plants will bloom 2nd year. Plant Pat. 1108. . . . . Each $8.00

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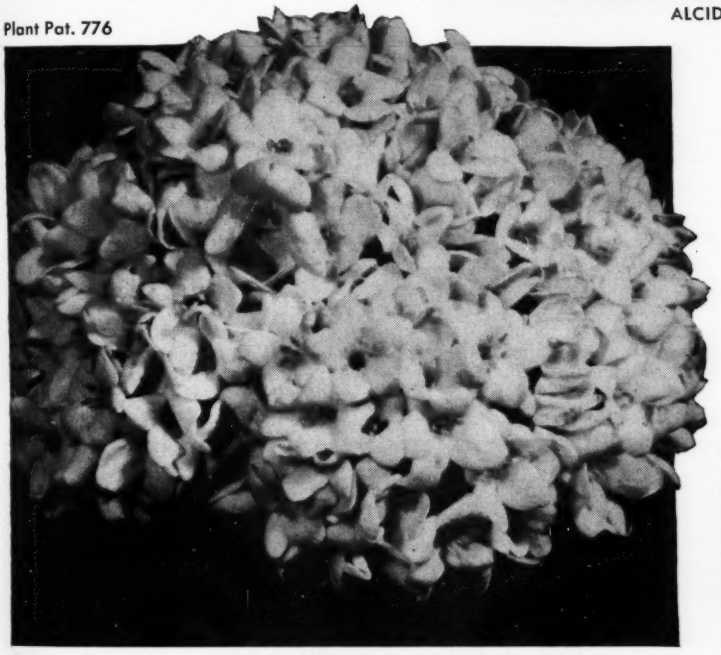

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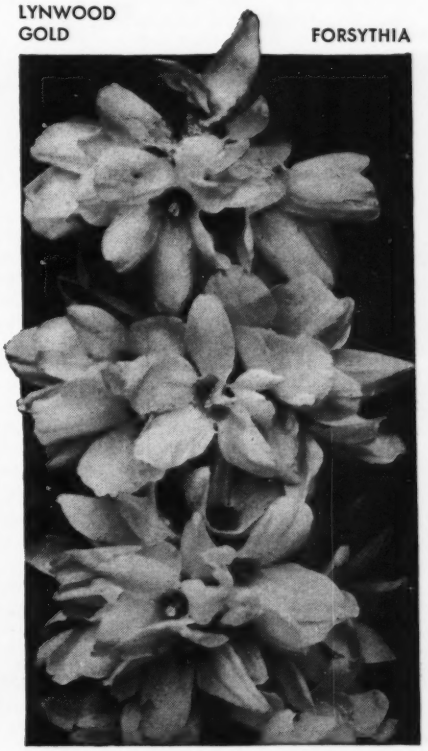

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Wayside Gardens

NEWS, NOTES and COMMENTS

The Witherbee Expedition. Some months ago I agreed with Mrs. Witherbee that there could be no more fitting tribute to the memory of her late husband, Silas H. Witherbee, than making a contribution to science in the form of an expedition to the hinterland of Venezuela, far south of the Orinoco. He was such an outstanding woodsman and lover of nature and exploration that we only regretted that he could not have lived to go along on such a venture. Alice Witherbee's financial help has made this expedition possible but, to my sorrow, she has not survived to witness the fruits of her generosity. Dr. Bassett Maguire, leading the group, is already in Venezuela and whenever he is able to send news from his distant camps it will be reported in "The Garden Journal." To me, this undertaking is a tribute not only to Silas, a loving husband and father and a loyal friend, but also to Alice, his wife. Their three grown children will follow the news as received from Dr. Maguire with deep appreciation.

H. R. KUNHARDT, *Chairman,*
Expedition Committee of
The New York Botanical Garden

New Downtown Members' Room and Offices of The New York Botanical Garden. The opening of a new Members' Room and downtown offices of The New York Botanical Garden in the French Institute Building, 22 E. 60th St., was celebrated by a tea on the afternoon of December 1. Mrs. James W. Maitland was in charge of hostesses for the tea.

The film, "Life in a Primitive Indian Village," taken by Dr. Bassett Maguire on his last expedition to the Guayana Highland of northern South America, was shown during the afternoon. Dr. William J. Robbins, Director, spoke on the explorations undertaken by The New York Botanical Garden and their importance to everyday life.

The Downtown Members' Room is being opened under the auspices of the Volunteer Associates of The New York Botanical Garden, of which Mrs. James Cox Brady is chairman. Mrs. Charles Burlingham and Mrs. Donald B. Straus, who are in charge of the special exhibits in the Museum Building, decorated the new Members' Room.

Downtown Lecture Series. The 1953 Lecture Series of The New York Botanical Garden will be held in the auditorium on the main floor of the French Institute Building, 22 E. 60th St., New York City. Seating capacity is limited to four hundred and tickets are being mailed in order of application. The admission fee is $2.00 for the series: "Making Plants Grow Better," by Dr. Firman E. Bear, Chairman of Soils Dept., Rutgers University, on January 8; "The Origin and Development of Cultivated Plants," by Dr. Wendell H. Camp, Curator, Dept. Experimental Botany and Horticulture, Academy of Natural Sciences of Philadelphia, on January 15; "Recent Advances in Plant Research," by Dr. S. L. Emsweller, Principal Horticulturist, U. S. Dept. of Agriculture, on January 22; and "Mountain Wild Flowers — Hunting and Growing Them," by Harold Epstein, President of American Rock Garden Society, on January 29.

Dr. Cowan Writes from England. Dr. Richard S. Cowan, Assistant Curator of The New York Botanical Garden, who is in England for a year on a post-doctoral fellowship awarded him by the National Science Foundation, writes that he and Mrs. Cowan are thoroughly interested in their activities in the Department of Botany at the British Museum of Natural History. At the time of their arrival, Dr. George Taylor was attending British Association meetings in Belfast, so Dr. Arthur Exell took them "under his wing." Dr. Exell, by the way, is collaborating on the flora of Angola with the Portuguese botanist, M. Mendoza.

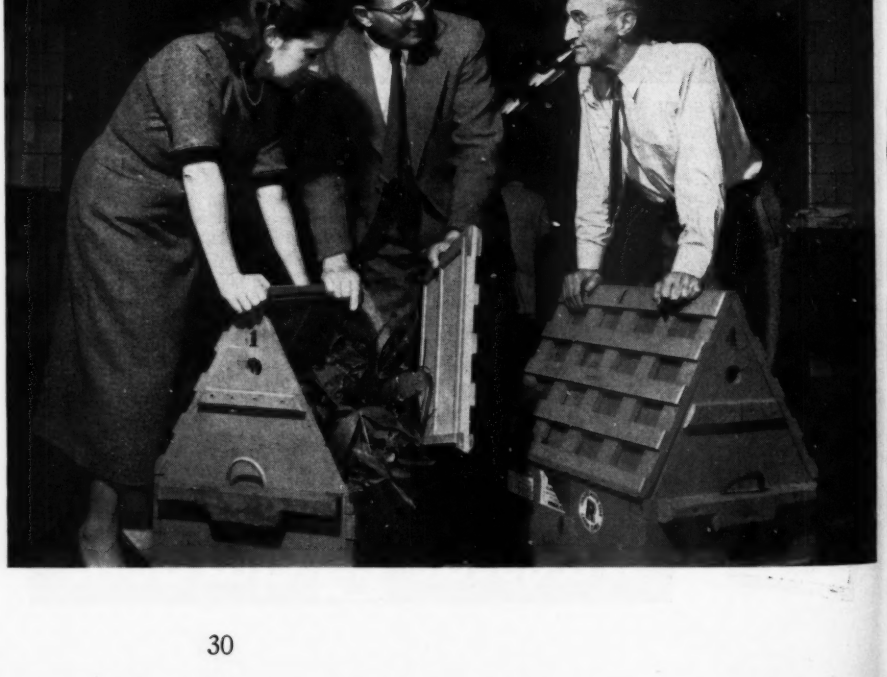
In letters to Dr. David D. Keck, Head Curator of The New York Botanical Garden, Dr. Cowan reports that "the herbarium is really in splendid shape, although different in its Bentham and Hooker arrangement, and a beehive of activity. I do not know whether the herbarium was fully organized in the new quarters when you visited here in 1950. Duplicate specimens are housed in the old bombed-out wing and the herbarium specimens are now in beautiful West Indian mahogany cases. There are a number of people engaged in repairing or remounting specimens damaged by fire and/or water during the fire following the bombing.

"We attended a morning session of the International Horticultural Congress, when Dr. Taylor showed his film of the Tibetan area which he visited with Ludlow and Sherriff. He gave a very good talk. Dr. Exell took us to the flower show, held in connection with the Congress, where we met T. H. Everett. We toured the Royal Horticultural Society's grounds at Wisley with Mr. Everett, spending the afternoon there and seeing an impressive display of horticulture. The gardens, four hundred acres in extent, are beautifully kept. We lunched at Talbot Hotel, in nearby Ripley, which was built in 1453. It was here that Lord Nelson, in company with Lady Hamilton, planned his campaign.

"We also had the thrilling experience of visiting the Linnean Herbarium and Library. It is remarkable how well preserved the Herbarium is. The only real damage it has suffered was at the hands of Linnaeus himself. He was so afraid that it might be burned, he had a stone vault built in his garden to house it — and the resultant moisture damage is apparent on some of the sheets. We saw his own interleaved, annotated copy of the first edition of SPECIES PLANTARUM. . . .

"We met Kingdon-Ward and his wife — they are busily preparing for their jaunt to northern Burma.

"Well, The New York Botanical Garden also has exhibits in Europe! The annual exhibition of the South London Entomological and Natural History Society was held at the Royal Academy on October 25. I was invited to bring slides or anything else of interest, so I arranged a showing of a selection of my Venezuelan slides as publicity for the exploratory work being carried on by the Garden. The slides, displayed in a lighted frame, were accompanied by a small placard setting forth the program. They attracted quite a lot of attention and favorable comment — at least there are some Englishmen who know about the exploration program of The New York Botanical Garden."



T. H. Everett shows Nancy Callaghan of The New York Botanical Garden, and George G. Becker, Inspector-in-Chief of the U.S. Bureau of Entomology and Plant Quarantine, two Wardian cases in which rare foreign plants were shipped from the British Isles. These plants were collected by Mr. Everett, Horticulturist of The New York Botanical Garden, during a three-month plant hunting expedition which was sponsored by The Garden Club of America.

Dr. Cronquist Addresses A.A.A.S. Dr. Arthur Cronquist, Associate Curator of The New York Botanical Garden, delivered an address entitled "The Decline of the Splitter" as part of a symposium on "Biosystematics and Taxonomic Units" before the Botanical Science Section of the American Academy for the Advancement of Science at the meeting in St. Louis on December 28, 1952.

Mrs. Oakleigh Thorne passed away in November at the age of eighty-one, at the home of her daughter, Mrs. Philip S. Chancellor, Santa Barbara, Cal. Mrs. Thorne had long been prominent in gardening activities, a member of The New York Botanical Garden, a member of the Garden Club of America and responsible for many of the ideals and accomplishments of the latter organization. "Thorndale," her home at Millbrook, N. Y., is one of the outstanding country estates in the East — and famed for its yew garden in topiary design. Surviving are Mrs. Chancellor and another daughter, Mrs. Dary Parshall of Millbrook, and two grandchildren, one of whom, Oakleigh L. Thorne, is a member of The New York Botanical Garden.

All-American Selections. This leading horticultural research institution acts as registrar of new flower and food varieties for North America. It is a non-profit educational council supported largely by the seed industry, for the benefit of American and Canadian gardeners. Proposed new varieties from round the world, except from behind the "iron curtain," since World War II, are entered in the All-American trials for testing and screening.

Trial gardens, twenty-two for vegetables and eighteen for flowers, are located in all climatic zones and geographic sections of the United States and in southern Canada. They are maintained by resident judges in charge who watch and note the entries all season long. The judges report behavior only on the entries at their own testing stations.

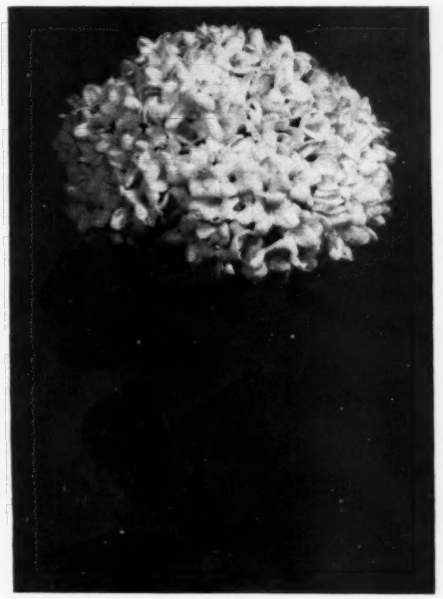
No new 1953 vegetables were considered worthy of All-American recommendation, but two new flowers were chosen. Royal Carpet alyssum, a violet-colored variety which grows two inches high and spreads ten or twelve inches to form a rosette, received a silver award. Comanche petunia, a rich scarlet-red, strong-growing hybrid, which blooms freely from spring to late fall, received a bronze award.

All-American rose selections for 1953 offer a dark red hybrid tea rose, "Chrysler Imperial" and a light coral-pink floribunda rose, "Ma Perkins." There are twenty rose test gardens throughout America in which the roses are selected.

Terrex, a Semi-Automatic Spade. For years people have tried to devise a way of eliminating the bending from digging. Now from Europe comes the solution — a semi-automatic spade or fork to which the name "Terrex" has been given. This new tool enables the gardener to dig and turn the soil without stooping. A lever rest enables the tool to loosen, lift, and turn the soil with little effort. The handle is adjustable to suit the height of the user so that he can work without bending.

The blade is first pushed into the soil until its back rests on the ground, then by easy, automatic motion of the handle, and the action of the spring forming the lower part of the handle, the soil is thrown forward

Forsythia Lynwood Gold (right) is one of several new shrubs which Wayside Gardens of Mentor, Ohio, have imported from Europe to introduce to American gardens. It originated in Ireland. Forsythia Lynwood Gold makes a magnificent display, for the golden-yellow flowers are produced prolifically along the erect branches. It stands up well under adverse weather. The shrub attains an ultimate height of five to seven feet, depending upon the varying conditions under which it may be grown.



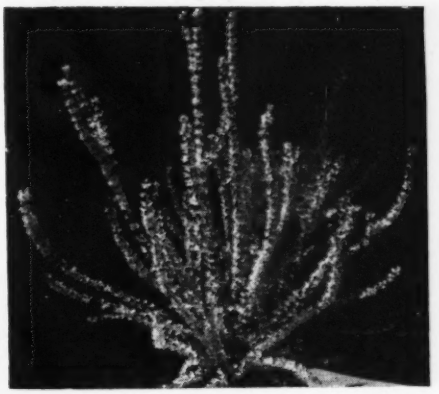
clear of the spade in such a way that the top soil falls into the bottom of the trench. When moving along to dig the next spit, the spade can be swung over by using the rest as a pivot, thereby making it unnecessary to lift the tool completely clear of the ground. A four-prong fork can be obtained and also a handle, with a cross-bar between the two grips, for users who have only one arm.

The "Terrex" spade was invented in 1946 by a retired engineer. It was tested through the next three years, then introduced to the garden public in western Europe in 1950, throughout Africa in 1951, and in India, Australia, and New Zealand in 1952. It is now being introduced to the United States, Canada, and Mexico through the usual channels for garden equipment.

Conservation in Mexico. The Instituto Mexicano de Recursos Naturales Renovables, sponsored by leading Mexican conservationists and the Charles Lathrop Pack Forestry Foundation of Washington, D. C., was inaugurated in Mexico City on October 27. It will serve as a coordinating agency for natural resource activities and management.

The grant of $100,000 by the Charles Lathrop Pack Forestry Foundation is evidence of its long-time interest in Mexican conservation problems. Nearly twenty-five years ago, the foundation made a preliminary survey of Mexican forests. In recent years, its President, Randolph G. Pack, has conferred with officials and conservationists in Mexico on establishing a conservation policy to halt the destruction which threatens Mexico's already insufficient agricultural land.

According to Mr. Pack, the work of the



Viburnum Carlcelphalum **(left), developed in England as a hybrid from *V. Carlesi* and *V. macrocephalum*, was shown before the war at one of the Royal Horticultural Society's shows. It received the highest award. Tested during the past several years by Wayside Gardens at its nursery in Mentor, Ohio, it has proved reliably hardy. It has endured winter temperatures as low as ten degrees below zero.**

The shrub, which is of branching habit and quick growth, has leaves identical to those of *V. carlesi*, but they color brilliantly in the fall. The flowers—the thick clusters of which may be as large as six inches across—are very fragrant, another characteristic similar to *V. carlesi*.

Institute will not be competitive with the work in conservation conducted by Mexican government agencies, the U. N., or the U. S. A. Point Four Program. It is intended, rather, to reinforce conservation efforts already under way through correlation, integration, and especially through education.

Third General Assembly of I.U.P.N. This past fall, the Third General Assembly of International Union for the Protection of Nature met in Caracas, Venezuela. Dr. Charles J. Bernard of Switzerland was re-elected President, and William H. Phelps, Jr., noted ornithologist, was elected one of the three vice-presidents. Mr. Phelps also served as chairman of the organizing committee for the Third Assembly.

Four international organizations and one hundred sixty-two organizations in twenty-six countries have identified themselves with I.U.P.N. since its inception in Fontainbleau, France, four years ago. It is a world agency for governments, international organizations, and organizations within nations which are concerned with the all-important problem of conserving natural resources.

Resources for the Future, Inc. This is a new non-profit corporation, established to support a long-range program of research and education on the conservation and development of natural resources, essential to the progress and security of the nation. A citizens conference in Washington, D. C., during March 1953, is to be sponsored by the new organization. President-elect Dwight D. Eisenhower, in declaring his intention to join in the call for this conference, stated: "It is high time that the conservation conference of 1908 should be reborn in a mid-century setting."

Horace M. Albright, who is President of the U. S. Potash Co., Inc., and a former Director of the National Parks Service, is

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President of Resources for the Future, Inc. Among the members of the Board of Directors are: Edward J. Condon, President of Sears-Roebuck Foundation and former President, Friends of the Land; Dr. Reuben G. Gustavson, Chancellor of the University of Nebraska and former member of Board of Governors of the Argonne National Laboratory for Atomic Energy; Leslie A. Miller, Chairman of Resources Task Force of the Hoover Commission; Fairfield Osborn, President of the Conservation Foundation; William S. Paley, Chairman of the Columbia Broadcasting System and Chairman of the President's Materials Policy Commission; Beardsley Ruml, Consultant and former Advisor of National Resources Planning Board; and M. L. Wilson, Director of United States Extension Service, Department of Agriculture.

BOOK REVIEWS **(from page 28)**

THE DESERT YEAR. Joseph Wood Krutch. 270 pages, decorations by Rudolph Freund. William Sloan Associates, New York. 1952. $3.75.

Granted a sabbatical leave by Columbia University, on whose faculty he is Professor of Dramatic Literature, the author spent a year in the desert of Arizona. His interest had previously been aroused in the desert land by several brief visits to the American southwest. The Desert Year records his day by day impressions of desert growth, desert creatures, the sky, the climate. There are personal impressions revealed with a delightful combination of wisdom and simplicity. The reader finds himself enjoying two journeys—the one into the desert itself, the other into the charming mind of the author. The decorations by Rudolf Freund, one of America's fine nature artists, adds to one's enjoyment of this book.

MIGRATION OF BIRDS. Frederick C. Lincoln. 102 pages, illustrated by Bob Hines; bibliography, index. Doubleday, Garden City, N. Y. 1952. $1.

Through bird banding considerable light has been thrown on bird migration, which is one of the most interesting phases of ornithology; and in this little book, Dr. Lincoln reveals the story of migration in a concise and clear manner.

TEXAS RANGE GRASSES. Benjamin Carroll Tharp. 125 pages, with drawings by Clare Y. Whaley; bibliography. University of Texas Press, Austin, Texas. 1952. $4.

An outgrowth of more than thirty years of investigation by the author of the composition of the native vegetation of Texas, this book is the first of a series of studies on the improvement and conservation of grasslands by the Plant Research Institute of the University of Texas. It is a survey of the one hundred sixty-eight species of grasses of commercial importance to Texas rangers and, while intended as a basis for further research, its non-technical language facilitates its use by the layman.

THE WILLIAMSBURG CALENDAR FOR ENGAGEMENTS & ALMANACK FOR THE YEAR 1953. Illustrations by Elmo Jones. The Dietz Press, Richmond, Va. 1952. $1.25.

This marks the eleventh appearance of this attractive and useful calendar and almanac. It contains many old and fascinating quotations. We like

"We wish our patrons, far and near
Clear Conscience and a glad New Year
Good Recollections, not by Chance,
Bless those that plan them in advance."

from the HERB SHELF

"Anything green that grew out of the mould
Was an excellent herb to our fathers of old."

Dr. William J. Robbins, Director of The New York Botanical Garden, brought those lines up to date in an address to the Herb Society of America in June, 1952. He stated that some of the antibiotics, such as penicillin and aureomycin, might be called "herbs." To the herb grower the word "herbs" conveys, after a while, a state of mind rather than a botanical classification. Woody thyme, sage, and tree-like *Laurus nobilis,* source of bay leaves, cast out the limitations of the word "herbaceous" in defining a group of plants grown for flavor, fragrance, and physic. When you plan a garden of strictly herbs, you find that almost every plant family numbers one or more species used in medicine or industry.

It is the search for the use of plants before they were taken at their face value which makes herb collecting so fascinating. More often than not, in tracking down the ancient history of the savory plants, you come face to face with one of today's "discoveries." For instance, the old idea of eating parsley to take away the odor of onion or garlic from the breath sounds mighty like the claims made for chlorophyll—for what is greener than parsley?

However, the gardener may leave the medicinal properties of plants to the doctor, but by the clever use of herbs in the kitchen prove that cooking is not a science but an art. To add economy to artistry is practically genius and the flavor and low cost of the steak in the following recipe will earn the cook that accolade.

FLANK STEAK WITH HERBS

Have the butcher score a large flank steak to make it ready for broiling. This lean cut of beef is often put into ground meat and may have to be ordered ahead. It possesses a superlative flavor, if properly cooked, and is served in restaurants as "London broil." Place the steak on a well-and-tree platter which may go under the flame. Broil for three minutes on one side and baste with sauce made by simmering together the following for ten minutes:

½ cup broth
2 tbsp. red wine
1 tsp. thyme, preferably *Thymus Herba-barona* picked fresh, or ½ tsp. dried French thyme
½ tsp. dried basil
1 tbsp. garlic vinegar
1 tsp. fresh minced parsley

Speed is essential in working with flank steak. There is very little fat between the tissues, so it becomes tough if not served rare. Use a pastry brush to spread the basting sauce over the steak, dust with salt and pepper, and turn rapidly. Broil three minutes longer and serve on the hot platter. Slice thin, cutting on the bias.

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